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BY THE COMPTROLLER GENERAL 112031
Report To The Chairman, Committee On
Commerce, Science, and Transportation
United States Senate
OF THE UNITED STATES

The Coast Guard--Limited Resources Curtail Ability To Meet Responsibilities

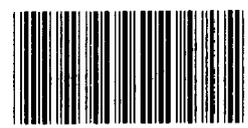
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The Coast Guard's responsibilities have increased without a commensurate growth in its resources.

The Coast Guard does not have enough vessels to carry out its missions, and some available vessels are in poor operating condition. The Coast Guard has too few people to meet its responsibilities and has experienced a low retention rate.

There are problems at some shore facilities, but GAO could not assess their overall condition because of limited Coast Guard-wide information and standards.

GAO provides several options for the Senate Committee on Commerce, Science, and Transportation to consider during its oversight of Coast Guard activities, several of which would require legislative changes. The Coast Guard pointed out disadvantages with these options.



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COMPTROLLER GENERAL OF THE UNITED STATES
WASHINGTON, D.C. 20548

B-197147

The Honorable Howard W. Cannon
Chairman, Committee on Commerce,
Science, and Transportation
United States Senate

SEN 6200

Dear Mr. Chairman:

As requested in your November 16, 1979, letter, we have evaluated the Coast Guard's resource capabilities to perform its missions.

At your request, we did not obtain comments from the Department of Transportation on the matters discussed in this report. However, we did obtain the views of the Coast Guard.

As arranged with your office, unless you publicly announce its contents earlier, we plan no further distribution of this report until 30 days from the date of the report. At that time we will send copies to interested parties and make copies available to others upon request.

Sincerely yours,

A handwritten signature in black ink, appearing to read "James B. Stearns".

Comptroller General
of the United States

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11/11/11

COMPTROLLER GENERAL'S REPORT
TO THE CHAIRMAN, COMMITTEE
ON COMMERCE, SCIENCE, AND
TRANSPORTATION
UNITED STATES SENATE

THE COAST GUARD--LIMITED
RESOURCES CURTAIL ABILITY
TO MEET RESPONSIBILITIES

D I G E S T

The Coast Guard will have problems effectively carrying out its responsibilities in the 1980s.

In recent years the Congress has given the Coast Guard new duties, for example, oil-spill prevention and cleanup, and enforcement of fisheries and drug laws. However, the Coast Guard's budget has not grown to meet its needs for additional staff and vessels. Moreover, some Coast Guard shore facilities are inadequate.

In light of budget limitations, the Senate Committee on Commerce, Science, and Transportation may wish to focus more attention on the Coast Guard's ability to meet its responsibilities. Because higher priorities may result in funds not being available, GAO provides five alternatives for the committee to consider during its review of the Coast Guard's budget:

- Transferring certain Coast Guard missions to industry.
- Establishing performance levels based on funding, rather than on program goals.
- Purchasing less costly cutters with limited capabilities.
- Using contractors when the Coast Guard does not have the resources needed to meet unusual circumstances or needs.
- Charging users for Coast Guard services.
(See pp. 37 to 42.)

The Coast Guard's 1980 budget is \$1.7 bil-
lion and 45,800 people. The budgets for
operating expenses and acquisition,

construction, and improvements have been reduced--5 and 33 percent, respectively--during the budgeting process by the Office of Management and Budget and the Department of Transportation. (See p. 4.) The reductions have limited the Coast Guard's ability to adequately maintain its cutters and shore facilities. The analysis which follows is based on resource needs the Coast Guard has developed for its missions.

CUTTER SHORTAGES

The cutter fleet has not expanded to meet increased duties. In fact the number of cutters has decreased from 339 in 1969 to 246 in 1979 because of budget reductions. (See p. 10.)

The Coast Guard estimated that it needs an additional 2,000 cutter-days for 1981 to meet its mission standards and 3,000 additional days by the mid-1980s. Because of the poor condition of some cutters and personnel considerations additional vessel use is not practical. The Coast Guard calculated that an additional 57 cutters would be needed by the mid-1980s to eliminate the cutter-day shortages.

In addition, between 1991 and 2000, 174 of the cutters existing then would need renovation or replacement. (See p. 12.)

CUTTER CONDITION

GAO evaluated 51 cutters and found that 35 were having problems related to

- changes in Coast Guard missions since being constructed,
- obsolete equipment (see p. 15),
- maintenance (see p. 16), and/or
- habitability (see p. 17).

In addition, adequate maintenance for some vessels was not provided because funds were not available. (See p. 16.)

For example, the cutter Acushnet could not fully perform its law enforcement mission because it could not accommodate helicopters and its equipment needed frequent repairs. The cutter Steadfast did not have enough qualified maintenance specialists, and replacement and repair parts were not readily available. Similarly, the cutter Iris lacked funding for necessary repair and replacement parts. Aboard the cutter Yocona habitability was a problem--berthing was overcrowded and there were too few latrines. (See pp. 15 to 17.)

PERSONNEL SHORTAGES AND LOW RETENTION

The Coast Guard personnel has remained fairly constant despite increased duties. High personnel attrition rates also have affected mission performance. (See p. 19.)

The Coast Guard estimated that an additional 8,200 people are needed in 1981, about half of which are needed to carry out activities mandated under recent legislation. The Coast Guard projected that it will need 81,150 people by 1991--a 77-percent increase from 1980 authorization--to meet its mission standards. (See p. 21.)

The Coast Guard retention rate for personnel ending their first enlistment has dropped from 28.6 percent in 1976 to 15.8 percent in 1979. The retention rate for personnel finishing subsequent tours had declined from 87.5 percent in 1976 to 64.8 percent in 1979. Low pay was the major reason given for not remaining in the Coast Guard. (See pp. 24 and 25.)

Because of the low retention rate, the Coast Guard has had to recruit about 8,000 enlisted personnel a year for 1979 and 1980. As a result about 48 percent of its enlisted personnel will have less than 2 years of experience. (See p. 25.)

The Office of Inspector General evaluated Coast Guard staffing standards and recommended changes in the Coast Guard's method. The Coast Guard agreed to improve its development and use of staffing standards. Although these actions may reduce the estimated personnel needs, the Coast Guard still needs additional resources. (See p. 26.)

SOME SHORE FACILITIES
HAVE PROBLEMS

Coast Guard studies and analyses indicate that many shore facilities have reached or surpassed their design life. Moreover, capital expenditures for rehabilitation and replacement have not increased as facilities were added. (See p. 30.)

A 1979 Coast Guard study of bachelor housing identified problems of overcrowding and facilities having outlived their useful lives. The Coast Guard evaluated 30 percent of its facilities in 1978-79 on an individual basis and identified similar findings. (See p. 33.)

GAO's review of 210 shore facilities (for example, housing and waterfront) found that 94 had various types and degrees of problems--physical deterioration, overcrowding and/or other inadequacies due to Coast Guard's changing missions. (See p. 34.)

For example, the bachelors' enlisted quarters at Portsmouth Harbor, New Hampshire, are severely overcrowded: 20 of 22 personnel living there have less than the 90 square feet required by Coast Guard standards. Because the building is not well insulated, the temperature fluctuates from room to room. (See p. 35.)

However, GAO could not determine the extent of the problems because of limited Coast Guard-wide information and standards for shore facilities. (See p. 36.)

RECOMMENDATIONS TO THE
SECRETARY, DEPARTMENT OF
TRANSPORTATION

The Coast Guard recognizes the need to establish criteria to judge facilities' condition but has not developed such criteria. Accordingly, GAO recommends that the Secretary require that the Coast Guard establish such criteria and periodically evaluate the condition of shore facilities using the criteria. (See p. 36.)

AGENCY COMMENTS

At the request of the committee GAO did not obtain the Department's comments but did obtain Coast Guard's views.

The Coast Guard concurred with GAO's positions but pointed out certain disadvantages of GAO's alternatives such as additional administrative costs and impediments to Coast Guard's multimission concept. (See pp. 36.)

GAO recognizes that there are serious concerns associated with the alternatives that must be considered before any are adopted.



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ABBREVIATIONS

AC&I	aquisition, construction, and improvements
GAO	General Accounting Office
OE	operating expenses
OG	operating guide
RDT&E	research, development, test and evaluation

CHAPTER 1

INTRODUCTION

In a November 16, 1979, letter, the Chairman, Senate Committee on Commerce, Science, and Transportation, requested us to evaluate the Coast Guard's resource capabilities to perform its missions. (See app. I.) The request resulted from the Coast Guard Commandant's statements that Coast Guard resources fall far short of the level necessary to adequately carry out its assigned tasks. The Commandant stated that

- many ships are old and not capable of carrying out their missions,
- shore facilities in many ways are inadequate to support mission and personnel needs, and
- personnel are not being retained.

The Commandant added that over the past several years, a number of legislative actions have substantially increased the Coast Guard's responsibilities, in traditional areas (search and rescue) as well as new ones (enforcing the 200 mile fishing zone). He estimated that a dozen acts of the Congress have had major impact on the Coast Guard's roles and missions. The Coast Guard estimated that legislative initiatives have expanded activities which will require about 12,500 personnel years of effort but only 8,400 staff years 1/ are available--a net deficit of about 4,100 personnel as of 1979. For example, to carry out its responsibilities under the Outer Continental Shelf Lands Act Amendments of 1978 (Public Law 95-372, 92 Stat. 629) the Coast Guard estimates that it will need an additional 275 personnel and an operating budget of \$9.9 million annually. Appendix II contains a discussion of legislation impacting on its programs and resources. ✓

The adequacy of Coast Guard resources has been questioned by the Chairman, Subcommittee on Transportation and Related Agencies, Senate Committee on Appropriations, during fiscal year 1980 appropriation hearings. The Chairman commented that the Coast Guard consistently asks for too little resources, and he wished it would be more aggressive in requesting additional funds to carry out its missions.

1/The term "staff" in the report refers to operating personnel and not those performing staff functions.

In prior reports we have also raised the question of Coast Guard resource levels. For example, our reports discussed the impact of resource limitations on the Coast Guard's ability to (1) respond to oilspills, (2) survey the dumping of sewage sludge and industrial waste into the ocean, (3) minimize drug smuggling, and (4) assure the safety of vessels entering U.S. waters. Appendix III summarizes our previous reports dealing with Coast Guard resource limitations.

BACKGROUND

The Coast Guard is one of the oldest continuous Federal Government organizations, having been established by the Congress in 1790. Although the Coast Guard is one of the Armed Forces of the United States, it functions under the Department of Defense only in times of war or national emergency. Its main functions under the Department of Transportation during peacetime are to (1) administer programs designed to protect life and property at sea, (2) maintain regulatory control over much of the marine transportation industry, and (3) enforce all Federal laws on waters subject to U.S. jurisdiction. These functions are defined by national as well as international considerations.

The Coast Guard has 14 operating programs--boating safety, bridge administration, commercial vessel safety, enforcement of laws and treaties, ice operations, marine environmental protection, marine science activities, military operations, military preparedness, port safety and security, radionavigation aids, reserve forces, search and rescue, and short-range aids to navigation. The Coast Guard also has 13 support programs--public and international affairs; engineering; personnel; training; medical; legal; intelligence and security; research and development; communications; civil rights; retired pay; hazard control safety (losses and costs from accidents); and financial management, personal, and supply.

In performing the missions, the fundamental concept of the Coast Guard operations is the multimission use of personnel, vessels, aircraft, and other facilities. This multimission concept is interwoven into every facet of the Coast Guard, including its organizational structure, administrative procedures, logistics systems, and training programs, as well as the way it carries out its program missions. For example, on the same voyage, ships often perform several functions, such as law enforcement, search and rescue, and protection of the environment. Shore stations and aircraft must be just as versatile. According to the Coast Guard, the multimission concept enables resources to be operated efficiently through flexible scheduling.

Planning and program standards

In determining its resource needs, the Coast Guard uses the Long Range View, program plans, and facility (cutter, aviation, shore, and boat) plans.

The Coast Guard's planning, programing, and budgeting process begins with development of the Commandant's Long Range View, which forecasts the marine economy, technology, and the environment over a 25-year planning range. Generally, the Long Range View provides the framework for program and budget development through input from program directors, program managers, and senior field commanders.

The 14 operating program plans reduce the Long Range View to a more predictable 10-year planning range which enables the program manager both to project the direction of the program and to analyze alternative means of accomplishing program objectives. With such plans, the Commandant can weigh the appropriate levels of effort within and among programs.

The Coast Guard has established standards for all of its operating programs. Program standards express quantitatively the tasks or criteria necessary to achieve program objectives most effectively. In some cases, the standards are mandated by the President or by law; in others they result from the Coast Guard's appraisal of what must be done to accomplish a particular goal. For example, generally each tanker visiting U.S. ports is to be inspected at least annually (Port and Tanker Safety Act of 1978, Public Law 95-474, 92 Stat. 1471). Other program standards, however, are more difficult to establish and must be determined through subjective analysis. Once standards are established, the Coast Guard readjusts the standards based on experience to meet a particular program objective. ✓

Facility plans document the aircraft, vessels, boats, and shore facilities needed over a 10-year period to fulfill the objectives of the program plans and standards. They are also used in preparing a capital-investment plan for the same 10-year period.

Coast Guard funding and activities

The Coast Guard's fiscal year 1980 appropriation is \$1.7 billion, and an authorized personnel level of about 45,800 personnel (39,500 military and 6,300 civilian). The following schedule summarizes the Coast Guard's funding and personnel levels since 1977.

<u>Fiscal year</u>	<u>Coast Guard appropriation</u>	<u>Authorized personnel</u>
	(billions)	
1980	\$ 1.7	45,800
1979	1.5	45,300
1978	1.4	44,800
1977	1.3	44,500

About 78 percent of the Coast Guard's 1980 budget is either for operating expenses (OE)--61 percent of the total budget--and acquisition, construction, and improvements (AC&I)--17 percent of the total budget.

During recent budgetary review processes, the Coast Guard's funding request has been reduced for both OE and AC&I as shown in the following table.

<u>Coast Guard's budget</u>	<u>Fiscal year</u>							
	<u>1977</u>		<u>1978</u>		<u>1979</u>		<u>1980</u>	
	<u>OE</u>	<u>AC&I</u>	<u>OE</u>	<u>AC&I</u>	<u>OE</u>	<u>AC&I</u>	<u>OE</u>	<u>AC&I</u>
	----- (millions) -----							
Submission to:								
Department of								
Transportation	\$843	\$300	\$1,003	\$385	\$1,050	\$406	\$1,094	\$426
Office of Management and Budget	832	270	948	254	996	345	1,054	305
Congress	843	171	920	227	981	279	1,037	284
Appropriation	838	236	924	256	988	287	1,043	286
Percent reduction between the Department and the appropriation	1	21	8	34	6	29	5	33

The Commandant expressed concern over the funding level for AC&I. He said that the Coast Guard will need a funding level for AC&I of \$700 million annually--almost 2.5 times the \$284 million requested from the Congress in fiscal year 1980--to maintain and improve its vessels and facilities.

Another important aspect of the Coast Guard's budget is the Research, Development, Test and Evaluation (RDT&E) program. The RDT&E appropriation for fiscal year 1980 is \$22 million and 232 personnel. This program has also been reduced during the budgetary review process--\$13 million was reduced from the

Coast Guard submission to the Department of Transportation and the amount funded by the Congress. See appendix IV for a discussion of Coast Guard RDT&E budget and objectives.

Coast Guard's budget has increased at the rate of about \$100 million a year, but its work has also significantly increased because of increased marine activities and additional legislative requirements. The following table provides examples of the Coast Guard's increased activities from 1977 to 1980.

Coast Guard activity	Fiscal years				Percent increase (decrease) 1977-80
	1977	1978	1979 (note a)	1980 (note a)	
Search and rescue responses	78,662	85,283	89,704	94,126	20
Aids to navigation maintained	49,277	47,520	48,000	48,500	(2)
U.S. commercial vessels inspected	10,590	10,690	11,000	11,400	8
Foreign vessels inspected	3,470	4,540	4,500	4,500	30
Pleasure boat boardings for safety	30,000	30,000	33,000	35,000	17
Cargo vessel boardings	52,500	62,725	63,000	63,500	21
Harbor patrol hours	93,000	118,000	120,000	120,000	29
Oil pollution removal operations	3,700	6,000	7,000	8,000	116
Tons of cargo escorted	93,254	173,334	170,000	170,000	82
Foreign fishing vessel sightings	18,225	3,838	3,800	3,800	(79)
Fisheries and law enforcement boardings	1,750	7,630	10,815	10,900	523

a/Estimate.

While most activities have shown some growth others have significantly increased. In two instances activities have decreased. A Coast Guard official said that the Coast Guard may not be meeting its program standards and that if more resources were available the Coast Guard would perform more activities, such as those in the table on page 5.

SCOPE OF REVIEW

Our review was made of the Coast Guard's role within the Department of Transportation.

We performed our analyses of Coast Guard resources at its headquarters in Washington, D.C., and the First (Boston), Eighth (New Orleans), and Thirteenth (Seattle) Districts during fiscal year 1980. We reviewed the condition of 51 cutters and their capability to perform their missions, the adequacy of 210 shore facilities, and the retention of personnel in those districts. We also reviewed the condition of shore facilities in the Third District (New York), the cutter Westwind (Ninth Coast Guard District at the Milwaukee, Wisconsin Unit) and the cutter Steadfast (Seventh Coast Guard District at the St. Petersburg, Florida Unit).

The selection of cutters was based on their availability (being in port) at the time of our review and our obtaining a representative sample by cutter type and missions performed. We also included cutters in various conditions based on Coast Guard records. Using cutter location we then selected shore facilities in the same general area for review. To help ensure that our review included a representative sample of cutters and shore facilities we considered Coast Guard suggestions.

In analyzing the retention problem we (1) reviewed Coast Guard records and studies on retention and (2) discussed people's reasons for reenlisting or leaving. Discussions were held in the Thirteenth District with individuals who were completing their tour of duty.

In our analysis of the supporting documentation for the Commandant's remarks on the Coast Guard's resource needs and cutters and shore facilities, we reviewed the Coast Guard's records and discussed the issues with Coast Guard officials. We did not review, analyze, or assess the program standards the Coast Guard established for its resource needs.

The Office of the Inspector General (formerly the Office of Audits), Department of Transportation, reviewed and reported on the Coast Guard's management of personnel. We summarized their report findings and conclusions, along with the Coast Guard's comments in chapter 2 and provide more detail in appendix V.

We obtained the views of the Coast Guard and incorporated them in the report. They concurred with the positions taken in the report.

CHAPTER 2

COAST GUARD RESOURCE LIMITATIONS

REDUCE MISSION EFFECTIVENESS

Our review of Coast Guard records and prior reviews of certain programs have shown that the Coast Guard has not been able to carry out some of its responsibilities as established in its operating program standards. Despite increased activity the Coast Guard has not been meeting its standards. See appendix III for a summary of other reports on Coast Guard resource shortages. The Coast Guard's inability to meet program standards is expected to become worse in the future and its effectiveness in meeting mission responsibilities will be further reduced.

The Coast Guard's inability to meet program standards is largely the result of insufficient resources--cutters 1/ and personnel--to implement its existing and increased responsibilities. The Coast Guard determines its resource needs to meet its standards which should result in its missions being adequately performed. While we did not evaluate the management of personnel by the Coast Guard, the Office of the Inspector General's review identified opportunities for improved management.

The following table provides examples of the Coast Guard's annual resources needed to meet its standards for selected program tasks from 1981 to 1990.

1/Cutters are 65 feet or longer, have permanently assigned personnel, and can operate for an extended period away from port.

Total Estimated Needs and Percent Needed
to Meet Selected Program Standards (note a)

<u>Programs program tasks</u>	<u>Ship days (note b)</u>			<u>Personnel hours</u>		
	<u>Total needs</u>	<u>Available</u>	<u>Percent short fall</u>	<u>Total needs</u>	<u>Have</u>	<u>Percent short fall</u>
Enforcement of laws and treaties						
Detect and deter foreign fishing violations	2,929	1,960	33			
Detect and deter maritime crim- inal law violations	5,500	1,750	68		(c)	
Marine environmental protection						
Monitor 20 to 30 percent oil and hazardous sub- stances being transferred	-	-	-	355,592	81,786	77
Board 10 to 15 percent tank vessels	-	-	-	93,760	41,254	56
Commercial vessel safety						
Administer and enforce vessel safety standards	-	-	-	67,786	67,786	0
Administer and enforce safety equipment and material standards for off-shore platforms	130	0	100	59,800	5,040	92

a/Resource needs for boats, aircraft, and vehicle hours are not included because they were not part of the committee's request. Also the Commandant did not address these as problems.

b/Medium- and high-endurance cutters and/or patrol boats.

c/Since cutters are multimission, personnel assigned are not dedicated to any mission. As a result, personnel needs are determined for the cutter fleet and not for any mission the vessel carries out.

LACK OF CUTTERS AND CUTTER
CONDITION AFFECT MISSIONS

The cutter fleet has decreased despite the Coast Guard's increased duties. In addition, some of the existing cutters have problems--they have (1) inadequacies as a result of major equipment failures or changes in Coast Guard missions, (2) maintenance problems which decrease their performance, and (3) habitability problems. Also, according to the Coast Guard, the AC&I budget for cutters has not been sufficient to properly maintain its present fleet. The lack of operating expense funds has resulted in the Coast Guard not completing repairs on some of its vessels. Of the 51 cutters we examined, 35 had inadequacies, maintenance problems, and/or habitability problems.

Need for additional cutter days

The number of cutters in operation has decreased since 1969 as shown below.

<u>Cutter type</u>	<u>Number of cutters</u>		
	<u>1979</u>	<u>1975</u>	<u>1969</u>
High-endurance cutters	18	17	38
Medium-endurance cutters	23	22	24
Patrol boats	76	75	105
Tenders (note a)	90	102	125
Harbor tugs	30	29	29
Icebreakers	6	5	9
Other	<u>3</u>	<u>5</u>	<u>9</u>
Total	<u>246</u>	<u>255</u>	<u>339</u>

a/Tenders are vessels used mainly in the aids to navigation program.

Cutters were decommissioned primarily because of (1) a budget reduction which eliminated the Coast Guard's ocean station program 1/ and (2) the ending of the Coast Guard's involvement in the Viet Nam conflict. When the reduction in fleet size occurred, anticipated growth in other missions was not recognized.

A decrease in the number of cutters combined with increased missions has resulted in a shortage as measured in cutter days. The number of days a cutter is available to perform missions is based on employment standards which generally provide for a cutter to be underway 180 days a year. The remaining 185 days are used for personnel considerations such as leave, reasonable workday hours, and for other home port activities, such as training and maintenance. The 180 operating days are further reduced as a result of (1) maintenance away from home port, (2) operational training, or (3) home port activities exceeding 185 days. For example, in 1979 the 43 year old cutter Duane had to cancel or reduce scheduled missions by 105 days due to maintenance problems. The following chart illustrates the net cutter days available for mission performance for selected cutter classes as of May 1979.

Average 1979 Cutter Days
Available For Mission Performance

<u>Cutter days</u>	<u>Cutter class</u>			
	<u>High- endurance (note a)</u>	<u>Medimum- endurance (note b)</u>	<u>Patrol boat</u>	<u>Buoy tender (note c)</u>
Standard	180	180	125	180
Less:				
Maintenance	(28)	(25)	(11)	(18)
Operational training	(33)	(19)	(2)	(20)
Mission performance	<u>119</u>	<u>136</u>	<u>112</u>	<u>142</u>

a/Atlantic area 378 foot cutters only.

b/210 foot cutters only.

c/Includes seagoing tenders only.

1/The ocean station vessels provided meteorological, navigational, communications, and rescue services for air and marine commerce and collected scientific data.

The Commandant estimated the Coast Guard needs about 2,000 additional cutter days to meet its program standards for fiscal year 1981. He further estimated that the shortage will increase to almost 3,000 cutter days by the mid-1980s as more cutters are decommissioned.

In 1979, the Coast Guard also projected cutter shortages for several classes of cutters through 1990. By mid-1980s the Coast Guard estimated that an additional 57 cutters would be needed to meet mission standards. The additional 57 cutters include 3 high-endurance and 25 medium-endurance cutters, 14 patrol boats, 13 tenders, 1 oceanographic vessel, and 1 ferry boat. ^{1/} In estimating the need for these additional cutters, the Coast Guard made certain assumptions, including completion of the planned replacement of 13 medium-endurance cutters and 11 cutters with icebreaking capability by 1981 and 1985, respectively. According to the Coast Guard, failure to acquire any of the planned replacement cutters will further increase the projected shortage of 57 vessels. Between fiscal years 1991 and 2000 the Coast Guard also estimated that 174 cutters existing then will require renovation and/or replacement to maintain the current cutter level.

Status of Coast Guard cutter programs

To meet its existing missions and attempt to prevent cutter day shortages through lost operating days, the Coast Guard has taken actions to replace and/or renovate obsolete and deteriorating cutters in four classes.

1. The Coast Guard plans to replace 13 of its oldest high- and medium-endurance cutters with 270 foot medium-endurance cutters. These older cutters ranged in age from 34 years to 43 years. Among other improvements the new cutters will have flight decks for helicopters not available on the old cutters. The replacement program began in 1973 and is expected to be completed by 1986. According to a Coast Guard headquarters operations official, four of the new cutters are currently being constructed. The Coast Guard will award a multiyear contract for the construction of the next nine ships. Funds for five of these nine ships have been appropriated.

^{1/}The icebreaking vessels estimates showed that for certain types a need existed and for others an excess existed. However, the net effect showed no excess or shortage situation.

The Coast Guard expects delivery of the first cutter in August 1981 and the remaining 12 cutters by 1986. This assumes that the four remaining cutters are funded in time to meet the schedule. The Coast Guard estimated that the new cutters will cost about \$60 million each.

2. The Coast Guard is replacing 13 existing 110 foot icebreaking cutters 1/ (harbor tugboats) which are physically deteriorating and have habitability problems (high noise vibration levels, uncomfortable temperatures, cramped and unhealthy living quarters, and inadequate sewage disposal facilities). The Coast Guard is replacing these 13 obsolete cutters with eleven 140 foot cutters. This replacement program began in 1976 and is expected to be complete in 1986. According to the Coast Guard four cutters were delivered in 1979, two will be delivered in 1980, and the remaining five are not authorized. The Coast Guard estimated that as of January 1980, the remaining five cutters would cost nearly \$14 million each. The Coast Guard's present plans are to obtain the remaining five replacement cutters, however, if the Great Lakes shipping season is extended, more cutters may be needed.

3. The Coast Guard began renovation of the 180 foot buoy tenders in 1970. All 30 of the tenders were over 30 years old, habitability was poor, and they had experienced severe engine failures. As of February 1980, 14 cutters had major renovation which should extend the useful life to the late 1990s. Of the remaining 16 tenders 13 had habitability improvements which will not extend the useful life. Fourteen tenders (11 of the 13 and the remaining 3 of the 16) will undergo major renovations starting in 1981 at a cost of about \$7 million each.

1/In a prior report "The 140-Foot Harbor Tugboat: Does the Coast Guard Need It On The East Coast?" (PSAD-79-17, Jan. 15, 1979), we agreed that sufficient justification existed for the replacement cutters. However, we did not agree that the expanded capabilities (increased shaft horsepower) were needed for the east coast vessels.

4. Part of the 95 foot patrol boat fleet consists of 26 cutters built from 1953 to 1958. The Coast Guard is presently renovating the cutters which have a history of major engine and equipment failures and habitability (personnel living conditions) problems. As of January 1980, five cutters have been renovated and the sixth is expected to be completed in April 1980. The remaining 20 cutters are expected to be renovated by January 1985. According to the Coast Guard, renovations should extend the cutters' useful service life for an additional 10 years. The Coast Guard estimated that as of January 1980, it will cost about \$2.5 million to renovate each cutter.

Cutter problems

The Coast Guard fleet generally is old and reaching the end of its design life of 30 years as shown in the following table.

<u>Cutter type</u>	<u>Number of cutters</u>	<u>Average age</u>	<u>Range of ages</u>
High-endurance cutters	18	23	8 to 44
Medium-endurance cutters	24	22	11 to 41
Patrol boats	79	18	10 to 27
Tenders	86	28	4 to 43
Harbor tugboats	27	18	2 to 41
Icebreakers	6	25	3 to 36

While a cutter's age, in and of itself, is not the criteria for a vessel's condition, it provides an indicator of some problems. The average age of all cutters is 22 years but for those included in our review the average age is 23 years. Our review of 51 cutters--18 in the First District, 14 in the Eighth District, 17 in the Thirteenth District, and 2 in other districts--disclosed that 35 cutters had problems related to inadequacies, maintenance, and/or living conditions for personnel. 1/

1/Persons without dependents who are assigned to a cutter generally are not guaranteed shore housing or provided an allowance for housing when the cutter is in port. They reside on ship or in housing at their expense unless quarters are available. Personnel with dependents are entitled to quarters allowances. (37 U.S.C. 403)

The following table summarizes our analysis and observations of the cutters included in our review.

<u>Problems (note a)</u>	<u>Districts</u>			
	<u>First</u>	<u>Eight</u>	<u>Thirteen</u>	<u>Other</u>
Inadequacies	9	5	5	2
Maintenance	9	7	6	2
Habitability	6	11	10	2

a/Some vessels have more than one problem.

Limited funding reduced the Coast Guard's ability to improve and renovate existing cutters and adequately maintain the fleet as repairs become needed. Although the AC&I cutter budget was \$125 million and \$128 million for fiscal years 1979 and 1980, respectively, the Coast Guard estimates that \$200 million will be needed annually over the next 5 years to maintain the existing fleet. Our analysis also showed that the Coast Guard does not have sufficient OE funds to perform maintenance and repair work. The cutter operating costs were about \$160 million and \$171 million for fiscal years 1978 and 1979, respectively (1980 was not available at the time of our review) which included such costs as fuel, personnel, and maintenance. According to a headquarters maintenance official, the Coast Guard needs an additional \$12 million as of February 1980, for major maintenance projects, such as engine and structural repairs.

Cutter inadequacies can result when (1) missions change or receive increased emphasis and require different cutter capabilities than originally anticipated when the cutter was designed and constructed or (2) equipment wears out as the vessel nears the end of its useful life (for example, generators, boilers, and turbines). For example, the 327 foot high-endurance cutters do not have helicopter flight decks because the Coast Guard did not have helicopters when the vessels were constructed. The lack of flight decks reduces the ability of the cutter to adequately enforce laws and treaties. In its drug interdiction program, the Coast Guard usually uses a high- or medium-endurance cutter with a helicopter to spot drug traffickers. Of the cutters we reviewed, 21 had major inadequacies, including lack of on-board helicopter capability, obsolete equipment, and lack of proper equipment.

The Acushnet--a 37-year-old medium-endurance cutter which was converted from an oceanographic vessel--lacks a helicopter flight deck which reduces its effectiveness in carrying out law enforcement missions. In addition, major equipment is obsolete, including steam generators, the main blower unit, and the fuel oil purifier. A high-endurance

cutter which is 43 years old--the Bibb--also lacks on-board helicopter capability and had obsolete steam generators, boilers, and turbines.

The Citrus--a 36-year-old buoy tender converted to a medium-endurance cutter--is technologically incapable of effectively performing law enforcement missions due to a lack of speed. The top speed of this cutter is 11 to 12 knots. Although the Citrus has never failed an enforcement mission, it is slower than most domestic and foreign fishing boats which have speeds ranging from 11 to 17 knots.

Maintenance problems of many types have occurred on the cutters. In addition, funds have not always been available to repair and maintain some cutters. Of the cutters we reviewed, 24 had major maintenance problems, including a lack of qualified cutter maintenance personnel, lack of sufficient funds to complete necessary repair work, and problems getting replacement parts.

For example, the cutter Duane has had a history of major maintenance problems which adversely affected its ability to carry out missions. In fiscal year 1979 it was in a maintenance and repair status 97 percent of the year due to equipment failures associated with its reduction gear (transmission) and engine. As a result, the cutter had to cancel three law enforcement missions and two training missions totaling 105 days. In fiscal year 1979, the Active--a 13-year-old medium-endurance cutter--canceled four law enforcement missions for 72 days due to unscheduled maintenance.

The Steadfast--an 11-year-old medium-endurance cutter--has had major propeller shaft alignment and engine problems. In addition, due to a lack of qualified enlisted personnel (machinery technicians, electricians, and damage control specialists) routine maintenance and repair work is not getting done. At present the cutter has a need for approximately 10 additional qualified maintenance specialists according to the engineering officer of the cutter. Replacement parts for essential equipment (engines, pumps, boilers) are backlogged from 3 months to 2 years. These parts must be special ordered from manufacturers other than the original equipment manufacturer.

A funding shortage precluded necessary repairs on 11 cutters we reviewed. For example, the Iris--a 36-year-old seagoing buoy tender--was not able to complete all necessary repairs due to a funding shortage (only 23 of 51 worklist projects were completed in 1979). Because of the funding shortage of \$120,000 the Coast Guard could not replace the worn out parts of its boom which impacts on mission

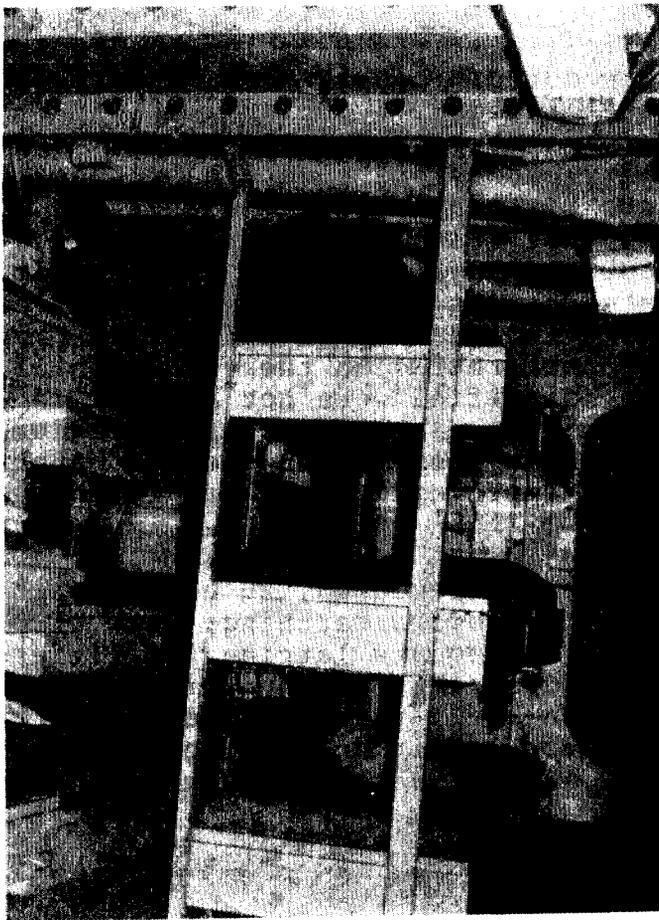
performance. Similarly, the Durable--a 13-year-old medium-endurance cutter--had funding repair needs of \$350,000 but was only authorized \$275,000.

Habitability conditions aboard many Coast Guard cutters are not adequate by today's living standards. Among the problems are poor ventilation, inadequate heating, overcrowding, and insufficient privacy. Generally, the habitability of the cutter is related to its age. These problems can cause low morale and affect the quality of life. The problems are more acute when personnel reside on the vessel while it is in port. The problems we identified were not present in all vessels of the same class (for example, 210 foot medium-endurance cutters) because some vessels were better maintained, had made habitability improvements, or had fewer people aboard while in port.

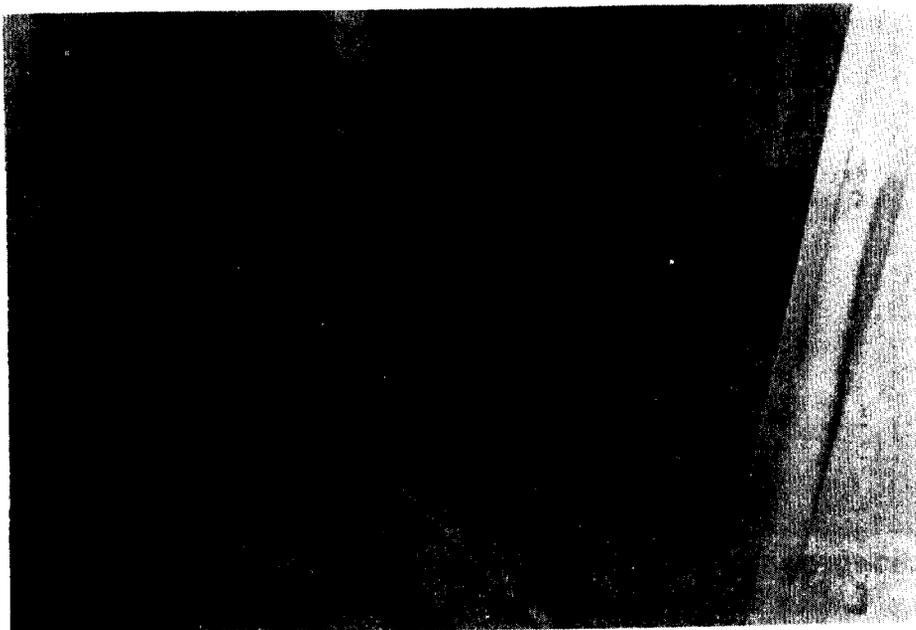
Of the cutters we reviewed, 29 had major habitability problems, including crowded berthing; lack of privacy and recreation space; inadequate latrine facilities; and poor ventilation, heat distribution, and air conditioning. For example, the Yocona--a 35-year-old medium-endurance cutter--is in generally poor condition. We found berthing areas cramped and only 18 vertical inches between beds (see following picture).



CROWDED BERTHING ABOARD THE CUTTER YOCONA



CROWDED BERTHING ABOARD THE CUTTER UNIMAK



DETERIORATING CONDITION OF SHOWER STALLS ON THE UNIMAK

Over 60 enlisted members had to share limited latrine facilities of four toilets, three showers, six sinks, and two urinals. A high-endurance cutter which is 38 years old--the Unimak--had generally poor and inadequate habitability, including crowded berthing and living space; shower stall deterioration; inadequate latrines; and inadequate heating and air conditioning (see following pictures). Similarly, the Campbell--a 43-year-old high-endurance cutter--had one latrine facility for 84 crew members. The latrine consisted of six toilets, two urinals, six showers, and eight sinks. In contrast, we found the White Pine--a 28-year-old buoy tender--in generally adequate condition with more space for enlisted personnel.

PERSONNEL SHORTAGES AND
DECLINING RETENTION RATE
AFFECT PERFORMANCE OF MISSIONS

The Coast Guard's personnel resources have basically remained the same over the past years despite additional duties. The added duties have contributed to personnel shortages which have reduced mission capability. In addition, the Coast Guard has not been able to retain its trained enlisted personnel and is depending on inexperienced personnel to do the job, both of which further impair mission effectiveness. The following table summarizes the budget requests and appropriations for military and civilian personnel for fiscal years 1978-80.

<u>Submissions to</u>	<u>Personnel strengths</u>					
	<u>Fiscal years (note a)</u>					
	<u>1978</u>		<u>1979</u>		<u>1980</u>	
	<u>Military</u>	<u>Civilian</u>	<u>Military</u>	<u>Civilian</u>	<u>Military</u>	<u>Civilian</u>
Department of Transportation	41,458	6,926	40,464	6,786	39,868	6,782
Office of Management and Budget	39,674	6,655	38,420	6,482	39,143	6,523
Congress	38,796	6,571	38,420	6,421	39,027	6,350
Appropriated	39,003	6,413	39,106	6,274	39,473	6,332
Changes after approval (note b)	38,420	6,421	39,026	6,300	39,473	6,332

a/End of year figures.

b/The Office of Management and Budget placed restrictions on Coast Guard recruiting and hiring which precluded obtaining the authorized level in some cases.

Personnel shortages

The Coast Guard has estimated that an additional 8,200 positions (billets) for selected programs and legislation are needed now, of which about half are needed to support recent legislation associated with programs in the following areas: Marine Environmental Protection, Port Security and Safety, Commerical Vessel Safety, Enforcement of Laws and Treaties, and Domestic Icebreaking. The remaining 4,100 billets are needed to reduce the workweek of search and rescue personnel and for training, 1/ recruiting, and cutter operations associated with enforcing laws and treaties.

1/Our prior report "If Defense And Civil Agencies Work More Closely Together, More Efficient Search/Rescue And Coastal Law Enforcement Could Follow, "(LCD-76-456, May 26, 1977) discusses the potential for increased coordination among Department of Defense components, the Coast Guard, and civil law enforcement agencies in using their aircraft and ships in performing search and rescue missions. It discusses economies that could be realized from greater sharing of assets and provides alternatives for more effective use of people and equipment.

The following table summarizes the 8,200 additional billets the Coast Guard estimated it needs.

	<u>Staff years</u>
Legislative changes (note a)	4,091
Marine Environmental Protection and Commercial Vessel Safety Programs (note b)	430
Search and rescue (mainly to reduce workweek to 68 hours)	2,120
Cutter operations associated with enforcement of laws and treaties	470
General support activities (note c)	<u>1,100</u>
Total	<u>8,211</u>

a/ See appendix II for more information on legislative responsibilities given to the Coast Guard.

b/ Appendix III discusses prior reports, which identified resource shortages in these programs.

c/ Includes 40 staff years for increased research and development effort, 190 staff years for recruiting, 550 staff years for training, and 320 staff years for other support activities.

At our request, the Coast Guard estimated its personnel needs by the year 1990 at 81,147, an increase of 77 percent over 1980 authorization. We did not evaluate the Coast Guard estimate.

The following table shows the estimated personnel (military and civilian) needs by operating program, cutter plan, aviation plan, and support needs.

Personnel
requirements

Operating programs	
Enforcement of Laws and Treaties	413
Short-Range Aids to Navigation	1,942
Radionavigational Aids	1,645
Commercial Vessel Safety	2,554
Port Security and Safety	3,211
Recreational Boating Safety	749
Search and Rescue (note a)	14,013
Marine Environmental Protection	1,250
Communications (note b)	711
Other	672
Aviation operations	3,655
Cutter operations	<u>15,332</u>
Total direct operating programs	46,147
Support programs (note c)	<u>35,000</u>
Total	<u>81,147</u>

a/If the Coast Guard could continue to use reserve and auxiliary personnel, the 14,013 figure could be reduced by 6,031. Since this cannot be assured the larger personnel estimate is used. (See note c because this affects support personnel needs.)

b/Normally considered support but due to its importance and specialization the Coast Guard identified it separately under operating programs. These are not included in the support calculations.

c/Support personnel needs were calculated by the Coast Guard using a percentage of direct operating programs (43 percent of the total needs) based on current personnel.

Any major increase in personnel would require additional support--training facilities, staff, and housing. The cutters and aircraft estimates were developed based on their respective plans. For example, using the May 1979 cutter plan, with some modifications, the Coast Guard (1) determined the number and types of needed vessels, (2) calculated the personnel needed to operate each vessel, and (3) summed the personnel needs for the entire fleet. This resulted in its estimate of 15,332.

The Coast Guard used the individual program to calculate its estimate of the personnel needed for each program. For example, for the search and rescue program the Coast Guard determines the number of stations, the estimated responses based on historical data, and the positions and work hour requirements needed to operate its stations. The staffing at each station will vary depending on location and expected requests for responses. The Coast Guard estimated that 34 people are needed to operate a station with one boat. Also, the total manpower estimate of 14,013 is based on a 68-hour workweek.

Subsequent to our request, the Department of Transportation, the Office of Management and Budget, and the Coast Guard agreed that the Coast Guard will undertake a zero-based review of the requirements for military personnel in conjunction with the fiscal year 1982 budget submission. The results of this undertaking were not available at the time of our review.

Because of personnel shortages some of the Coast Guard's missions are not being fully met (see apps. II and III for information on the additional staff needed to meet additional legislative duties and to carry out certain aspects of its programs). Also, personnel shortages can cause long work hours. For example in the Thirteenth District search and rescue personnel at 8 out of 11 coastal units average between 80 to 90 hours a week in the winter (October to April) and 110 hours a week in the summer. During the summer season leave is not permitted. The Commanding Officer of a district unit with 61 personnel estimated that 20 additional personnel would be needed to reduce the workweek from 95 hours to 68 hours.

Declining retention rate
reduces mission effectiveness

The Coast Guard has experienced a declining retention rate of its enlisted personnel at the end of their first enlistment (up to 6 years) and subsequent reenlistments. This declining retention rate, combined with personnel shortages, reduces the Coast Guard's effectiveness. The following table summarizes the retention rate from 1976 to 1979. 1/

1/The Department of the Navy's reenlistment percentages for fiscal year 1979 were 16.1 for first-term reenlistment which is based on a 4-year enlistment and 40.4 for subsequent reenlistments.

For the 12 months ending	Reenlistment			
	First tour		Subsequent tour	
	Number	Percent	Number	Percent
Sept. 30, 1979	860	15.8	1,140	64.8
Sept. 30, 1978	845	17.9	1,571	72.0
Sept. 30, 1977	791	26.5	1,762	80.2
Sept. 30, 1976	871	28.6	1,857	87.5

The retention rate fluctuates for various job classifications (ratings). The retention rate for those reenlisting after their first tour of duty ranged from 0.4 percent (fireman) to 30.4 percent (sonar technician) over the 12-month period ending September 30, 1979, and the rates for subsequent tours ranged from 45.4 percent (dental technician) to 83.3 percent (telephone technician). 1/

In 1978 the Coast Guard experienced a critical shortage for senior petty officers in nine ratings (for example, machinery and telephone technicians, electricians, aviation machinists, damage controlmen, gunners' mate, etc.). To help alleviate the long standing shortage the Coast Guard offered 188 qualified retirees an opportunity to return to active duty for a 2-year period. Five retirees agreed to return to active duty and were reinstated. The Coast Guard still has problems in filling about two-thirds of these ratings. The Office of Personnel, in recognizing the personnel shortage of training staff, attempted to evenly distribute the available personnel at the training centers so that all could operate at a consistent level. As a result staffing will be provided at an 85-percent level of the total needed personnel.

While the Coast Guard has not conducted a formal study on retention, it did complete an interim reenlistment survey in July 1979. The following table shows the reasons people gave for leaving the Coast Guard (first, second, and third reasons were requested).

1/Positions with less than 10 people were excluded.

<u>Major factors for leaving</u>	<u>Percent giving a reason by years of service</u>	
	<u>Less than 6</u>	<u>6 to 11</u>
Salary too low	58	52
Family considerations	21	32
Recognition of work	14	11
Work itself	13	7
Leadership	21	20
Frequent changes of station (rotation)	12	22
Military regulations	39	21
Long working hours	19	12
Educational opportunity (off duty)	13	11
Quality of bachelor quarters	12	2

When asked for the primary factor for not reenlisting, salary was the reason in both groups.

The Thirteenth District conducted two surveys to identify reasons for people not reenlisting. In addition, we interviewed 108 people who were finishing their tour of duty. The primary reason for leaving in all three surveys was low pay. Other factors included long working hours and poor leadership.

The Coast Guard estimated that about 8,000 recruits a year were needed for 1979 and 1980 to maintain its authorized personnel level. The number of new enlistments is generated by projecting retirements, discharges, expiration of enlistments, death, and promotions into the officer corps. For fiscal year 1979, 7,558 were recruited which represented about 96 percent of their goal (7,881). The fiscal year 1980 goal is 7,253, which the Coast Guard anticipates meeting. However, according to the Chief of the Recruiting Division the fiscal year 1979 shortage of 4 percent would be unacceptable for 1980.

The impact of the low-retention rate and the emphasis on recruitment has resulted in the Coast Guard having about 48 percent of its enlisted personnel with less than 2 years of experience. As we have pointed out in earlier reports, some Coast Guard missions (for, example, responding to and cleaning up oilspills) require about 18 months of training--both school and on-the-job training. Therefore, the Coast Guard is relying on less trained people and as a result, in our opinion, its mission effectiveness is reduced.

Also, the lack of trained personnel can result in accidents. Our review of the Thirteenth District Safety Officer's records--safety accident reports--cited inexperience as a cause of 13 of 39 accidents involving Coast Guard vessels in fiscal year 1979.

Inspector General's review of the
Coast Guard's management of personnel

The Office of Inspector General, Department of Transportation, issued a report entitled "Consolidated Report of Audit of Management of Military Personnel in the United States Coast Guard" (HC-CG-78-2.13, Apr. 7, 1978) which is discussed below along with the Coast Guard's comments (see app. V for a detailed discussion). The report addressed four issues.

- Staffing standards manual does not provide a reasonable basis to establish or adjust unit personnel authorizations.
- Current personnel authorizations for units are not in accordance with work requirements.
- Use of personnel at the unit level is not always consistent with actual needs.
- Some billets devoted to the general detail (those billets needed in addition to the operational billets necessary to maintain a full operational system; for example, people in training, traveling between assignments) are excessive.

The Inspector General made a number of recommendations to correct the above issues.

Coast Guard comments

The Coast Guard agreed with the general thrust of the recommendations for (1) improving the development of staffing standards, (2) applying such standards to personnel authorizations on the basis of actual work requirements or readiness needs, (3) reviewing periodically staffing requirements by field commanders, and (4) effectively managing personnel overhead allowances.

In discussing the development and validation of staffing standards and the review of manpower requirements, the Coast Guard recognized that staffing standards have not yet been developed for many areas of Coast Guard activities.

Furthermore, many that have been developed represent the initial Coast Guard efforts in this type of documentation. The Coast Guard did not agree that the standards, as initially developed, are useless in the general planning. The staffing standards as presently written are not intended to be the sole determinant of manpower requirements or the basis for changes in manpower authorizations but are a starting point in the manpower planning process. The Coast Guard has initiated action addressing these issues.

CONCLUSIONS

The Coast Guard's responsibilities have increased without a commensurate growth in its resources--cutters and personnel. In fact the Coast Guard's budget has increased very slightly and for some major budget items--OE and AC&I--decreases occurred during the budgetary review process. As a result of its limited budget, the Coast Guard has generally not been able to carry out many of its responsibilities. The situation is expected to become worse in the mid-1980s as newer programs require additional resources.

The Coast Guard's cutter fleet has decreased despite increased missions. This combination has resulted in a cutter-day shortage which reduces the Coast Guard's ability to carry out its missions. In addition, the Coast Guard has been using some cutters which have major operating problems. This has resulted in reduced mission performance. Also, the Coast Guard has not always had funds to repair and maintain its fleet which results in some work not being performed.

As with cutters, the Coast Guard's personnel resources have not increased to meet additional and expanded duties. Therefore, mission effectiveness is reduced. In addition, the Coast Guard has experienced a declining personnel retention rate which adversely affects mission performance. The Coast Guard has been relying on inexperienced personnel which also reduces its effectiveness.

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See chapter 4 for matters for consideration by the committee.

CHAPTER 3

CONDITION OF SHORE FACILITIES--CAUSE FOR CONCERN

The Coast Guard has recently expressed concern that it has not received adequate funding to maintain and replace its shore facilities. As a result, facilities are growing older and work and living conditions are deteriorating. A recent survey revealed that 48 percent of the Coast Guard's bachelor housing facilities are inadequate, based on minimum housing standards.

While the Coast Guard has considerable information on bachelor housing, it lacks similar information on other shore facilities. It has not developed assessment standards or a system to periodically evaluate facility condition. As a result, the Coast Guard has had to rely on broad analyses and surveys which provide only indications of facility condition. Without uniform information on facility condition and measurement standards, the Coast Guard's analyses, as well as ours, can only reach limited conclusions.

We found a variety of problems at the facilities we visited, including physical deterioration, overcrowding, and design inadequacies (technologically or programmatically obsolete). However, we could not determine the scope or severity of these problems Coast Guard-wide because of a lack of uniform centralized information and assessment standards.

SIZE OF COAST GUARD FACILITIES AND FUNDING HISTORY

The estimated replacement value of Coast Guard shore facilities is about \$3.3 billion. The various types of facilities expressed as a percentage of total replacement value are shown below:

<u>Facility type</u>	<u>Percent of total shore facility replacement value</u>
Utilities	19.7
Housing	17.4
Waterfront	16.4
Maintenance	12.8
Aids to navigation	11.3
Supply	5.3
Operations	4.6
Community services	3.8

<u>Facility type</u>	<u>Percent of total shore facility replacement value</u>
Training	3.4
Administrative	3.3
Medical	<u>2.0</u>
Total	<u>100.0</u>

Actual square footage of Coast Guard holdings has increased significantly during recent years due largely to the acquisition of Department of Defense facilities such as the Naval Station at Kodiak, Alaska. Since 1973, building square footage increased by 37 percent from 17.4 million square feet to about 24.0 million square feet in 1979.

Three sources of funds are available to construct and maintain shore facilities: (1) Operating Guide (OG) 30 funds for routine and minor maintenance usually under \$1,000, (2) OG 43 funds for renovation and minor improvements under \$75,000, and (3) AC&I funds for major replacement, expansion, and maintenance projects. The funding levels for these three sources and the size of the Coast Guard's holdings are shown below:

<u>Year</u>	<u>OG 30</u>	<u>OG 43</u>	<u>AC&I (note a)</u>	<u>Square feet of Coast Guard buildings</u>
	----- (millions) -----			
1973	\$(b)	\$16.9	\$28.5	17.4
1974	(b)	16.8	39.9	18.0
1975	(b)	18.0	40.2	21.3
1976	47.0	22.4	46.3	22.2
1977	34.7	25.0	29.1	22.6
1978	28.6	26.3	42.3	23.9
1979	46.7	30.3	28.4	24.0

a/Includes estimated administrative, planning, and equipment costs.

b/Not available.

LIMITED CENTRALIZED
INFORMATION ON SHORE
FACILITY CONDITION

Our efforts to assess shore facilities were hampered by the lack of uniform information on shore facility conditions. The Coast Guard has little centralized information concerning the condition of shore plants.

The Coast Guard's Civil Engineering Manual requires each district to inspect shore facilities at least once every 2 years to determine facility condition. The Chief of the Civil Engineering Division stated that the inspections are subjective because assessment standards do not exist. The Chief, Civil Engineering Division, said that to improve these evaluations the Coast Guard plans to establish standards to evaluate shore facilities and periodically inspect the facilities using such standards. This information will assist the Coast Guard in consistently evaluating facilities within and between districts for needed improvements.

In the absence of facility condition data, the Coast Guard relies on several broad analyses and surveys but because of limitations in scope or methodology, these analyses may not provide a reliable picture of the shore facilities' condition.

Age and funding analyses
imply facility deterioration

The Coast Guard has developed studies which indicate that (1) many facilities have reached or surpassed their design life and (2) capital expenditures for building rehabilitation and replacement have not increased in proportion to shore plant growth. Coast Guard civil engineers acknowledge, however, that these results are intuitive at best.

In developing age analyses, the Coast Guard estimated that about 20 percent of its buildings (in replacement value) are over 60 years old. 1/ The types of facilities most frequently 60 years or older included waterfront (about 42 percent), utility systems (about 32 percent), aids to navigation (about 20 percent), and housing (about 20 percent).

1/ Coast Guard estimated a building's age based on an average age of selected building groups--not on a building-by-building basis.

For additional perspective, the Coast Guard compared actual building age with estimated design life for that particular type of building. Estimated design lives considered physical obsolescence (facility inadequacies due to age or physical damage) and programmatic/technical obsolescence (facility inadequacies resulting from advances in technology or changes in operational missions). Although design life estimates are subjective, a Navy civil engineer told us that this approach is reasonable. The following table summarizes the percentage of Coast Guard structures (in replacement value) which exceeded intended design life.

<u>Facility type</u>	<u>Design life</u> (years)	<u>Percent older than design life</u>
Operational	20	85
Waterfront	50	47
Training	40	1
Aids to navigation	30	42
Maintenance/research and development	40	14
Supply	40	12
Medical	25	54
Administration	30	58
Housing	20	30
Community services	25	44
Utilities	50	33

The Coast Guard has projected that by 1990, the overall percentage of facilities surpassing design life will have increased from 35 percent to 42 percent. According to the Coast Guard this will occur because funding has not been sufficient to permit timely replacement of its facilities. This projection further assumes that all currently identified facility projects will be funded which would require more than doubling the 1979 AC&I funding level. If the funding level is not realized, the percentage of buildings surpassing design life will be greater than the 1990 projection of 42 percent.

In addition to examining the age of its facilities, the Coast Guard compared the growth of shore facilities with funds programed for facility replacement. The analysis indicates that replacement funds in 1981 dollars per square foot of shore plant had decreased from \$0.97 a square foot in 1972 to \$0.46 in 1980 as the following table illustrates.

<u>Fiscal year</u>	<u>Dollars a square foot</u>
1972	\$ 0.97
1973	.68
1974	.70
1975	.36
1976	.57
1977	.27
1978	.40
1979	.33
1980	.46

It is difficult to determine, however, what the optimal ratio of replacement funds per square foot of building space should be. As a result, the adequacy of this ratio for any given fiscal year cannot be evaluated. Coast Guard civil engineers maintain that even at its 1972 peak, this ratio has been grossly inadequate for replacing existing shore plant but indicated that a range of \$2.00 to \$2.50 a square foot would be needed.

In reviewing funding levels, the Coast Guard also noted that unfunded maintenance and replacement projects have increased significantly in recent years. For example, the backlog of unfunded OG 43 maintenance projects more than quadrupled from \$23 million in 1973 to \$99 million in 1979. Also, unfunded AC&I projects have increased by \$45 million from 1979 to 1980, a 6-percent increase after inflation. Most of these projects are for rehabilitating or replacing existing facilities rather than for constructing or acquiring additional facilities.

General facility condition survey

In April 1979, the Coast Guard requested district commanders to comment on the general condition of their shore facilities. Generally, the district commanders indicated that the shore facilities were being satisfactorily maintained. However, two districts--Third (New York) and Ninth (Cleveland)--indicated that facilities were in poor physical condition or that they were technologically obsolete. These districts contain almost 30 percent of the total shore facility holdings.

Although most districts appeared satisfied with current facility condition, they were concerned about facility aging and funding support. Most districts agreed that funding was not keeping pace with aging.

Coast Guard civil engineers were cautious about accepting the survey's generally favorable condition assessments. They pointed out that the districts had little objective criteria with which to evaluate facilities. As a result assessments were largely subjective and the survey results were little more than an opinion poll. In addition, most districts predicated their assessments on the availability of funds to correct previously identified inadequacies, although such funding is not guaranteed.

In addition to the general survey results, about 30 percent of the Coast Guard's shore facilities have been evaluated in 1978-79 on an individual basis, in conjunction with plans for coordinating the improvement of all the unit facilities. About 30 percent of the facilities in these evaluations were identified as needing major rehabilitation or replacement. According to a headquarters engineer, these evaluations more accurately depict the facilities conditions because such evaluations are prepared by engineers or consultants based on actual facility-by-facility inspections.

Bachelor housing survey reveals major inadequacies

In June 1979, the Coast Guard conducted a survey of bachelor housing and identified major problems. According to the survey, almost half the Coast Guard's bachelor housing facilities are insufficient and about 2,800 personnel (25 percent of all Coast Guard bachelors living in Coast Guard facilities) are inadequately housed. Problems ranged from severe overcrowding--in some cases twice as many personnel as minimum Coast Guard standards allow--to facilities that had outlived their useful lives and therefore were in need of major rehabilitation.

The survey criteria was based in part on Coast Guard bachelor housing standards established in May 1979. These standards are similar to minimum Navy requirements. Survey criteria included energy efficiency, security, safety, and morale. Overall facility assessments contain subjective judgment and, as a result, may vary between districts. However, based on minimum space criteria the survey showed that about 47 percent of bachelor housing facilities are inadequate.

RESULTS OF OUR
FACILITY EVALUATIONS

Overall, we believe that many of the facilities included in our review are in need of improvement--physically deteriorating, overcrowded, or inadequate due to changing Coast Guard missions. However, we could not determine the extent of the problem because of limited Coast Guard-wide information or standards for determining their condition. We categorized shore facility problems which we identified into four groups

- physical problems, including structural, plumbing, and electrical deficiencies;
- efficiency problems, including high maintenance and operating costs;
- use problems, including poor location and the adequacy of structure to perform its intended functions; and
- environmental problems, including physical (overcrowding, noise, or odor pollution) and personnel (safety, security, or comfort) deficiencies.

The following table summarizes the types of problems noted at the shore facilities we visited. ^{1/} The severity of the problems varied for each facility.

<u>District</u>	<u>Number of structures</u>		<u>Types of problems (note a)</u>				
	<u>Reviewed</u>	<u>With problems</u>	<u>Percent with problems</u>	<u>Physical</u>	<u>Efficiency</u>	<u>Use</u>	<u>Environmental</u>
First	41	27	66	14	10	10	19
Third	33	20	61	11	4	2	16
Eighth	60	19	32	9	6	10	9
Thirteenth	<u>76</u>	<u>28</u>	<u>37</u>	13	10	17	20
Total	<u>210</u>	<u>94</u>	45				

^{a/}Some facilities have more than one problem.

As shown, the condition of Coast Guard facilities fluctuated among districts. In discussing the differences,

^{1/}Although some of the problems are interrelated, we categorized the facility based on its predominate problems.

Coast Guard engineers explained that the First and Third districts have older shore facilities. The following examples illustrate the problems we found.

1. The bachelors' enlisted quarters at Portsmouth Harbor, New Hampshire, are severely overcrowded providing 20 of 22 personnel with less than the 90 square feet required by Coast Guard standards. Also the building is not well insulated and, as a result, the temperature between rooms fluctuates.
2. The boat haulout system at Rockaway Station, New York, has become technically obsolete and, as a result, is limited in performing its intended functions. The haulout system, which consists of railway tracks extending from the water to a fully enclosed boathouse, was built in 1940. It was designed to accommodate repairs on 30 foot patrol boats. However, in recent years the Coast Guard began to use 41 foot boats which are too large for the current haulout system. As a result, repair work must be performed at other Coast Guard installations.
3. The buoy maintenance shops at Base Astoria, Oregon, were physically deteriorating, inadequate for their intended use, and presented safety problems. Although the paint shop was heated, it could not accommodate the largest buoys; as a result, paint applied to these buoys in the winter does not adhere properly and flakes off. The walls of the water/sand blasting shop rusted out and its girder footings are flaking badly. Also this shop is separated from the welding shop by a curtain which allows moisture to enter the welding area creating the possibility of dangerous arcing from the welding equipment.
4. The bachelors' enlisted quarters at Seattle Support Center North, Washington, is in an advanced state of decay. Paint is chipping, roofs are leaking, and gutters are rusting and about to fall off. The building has poor ventilation and has no sprinkler system for fire control. Additionally, the building is not properly insulated and was overcrowded. This building is being replaced but still is in use.

CONCLUSIONS

The general shore facility analyses and surveys conducted by the Coast Guard are useful only as indicators of shore facility problems. The Coast Guard lacks uniform centralized information on actual facility condition and has not yet (1) developed necessary criteria to evaluate shore plant and (2) implemented such evaluations on a periodic basis. As a result, the scope or severity of shore facility problems cannot be fully determined. However, our analysis, as well as that of the Coast Guard does indicate that some shore facilities need improvement.

Coast Guard officials have acknowledged these deficiencies but have not developed uniform measurement standards for shore facilities and required periodic inspections using such criteria.

RECOMMENDATIONS TO THE SECRETARY, DEPARTMENT OF TRANSPORTATION

We recommend that the Secretary require the Coast Guard Commandant to (1) establish and issue uniform criteria for evaluating shore facilities and (2) evaluate periodically shore facilities, using uniform criteria, so that appropriate action can be planned.

AGENCY COMMENTS AND OUR EVALUATION

As requested by the committee we did not obtain comments from the Department. The Coast Guard agreed with the need to establish evaluation criteria and to periodically inspect shore facilities using such criteria. The Coast Guard identified action it has taken--adoption of Navy criteria for planning efforts, development of design criteria for different types of facilities, and establishment of barracks and spatial criteria. The Coast Guard added that existing documents aid in determining the extent of shore facility problems.

CHAPTER 4

MATTERS FOR CONSIDERATION DURING

CONGRESSIONAL REVIEW PROCESSES

Budget limitations have precluded the Coast Guard from meeting its existing and new responsibilities. This situation is expected to become worse during the mid-1980s as additional cutters and personnel are needed and as needed improvements to shore facilities, especially bachelor housing, become more critical. Because of the potential impact of the Coast Guard not being able to effectively carry out its many missions, the committee may wish to increase its involvement in the Coast Guard's ability to meet responsibilities through the oversight role.

We recognize that higher priorities may result in funds not being available to the Coast Guard for all of its needs. Therefore, we are providing five alternatives for the committee's consideration during the congressional review process. While these may offer opportunities to reduce the Coast Guard's financial needs, disadvantages also would exist. Before implementing any of these alternatives, further consideration and input should be obtained from the Coast Guard, maritime industry, States, the public, as well as any other affected parties.

TRANSFER CERTAIN OF COAST GUARD'S MISSIONS BECAUSE OF BUDGET CONSTRAINTS

An alternative to funding the Coast Guard's many missions at its optimum level would be to either reduce or eliminate certain missions. For example, as part of the Coast Guard's Commercial Vessel Safety Program it inspects vessels. This function is also performed by the American Bureau of Shipping which as a private organization certifies the soundness and seaworthiness of merchant ships. Duplication by these groups in safety standards, certification, and survey activities was identified by the National Academy of Sciences in a 1970 study. We also discussed the similarity of their functions in our report "How Effective Is The Coast Guard In Carrying Out Its Commercial Vessel Safety Responsibilities?" (CED-79-54, May 25, 1979). With the Bureau's concurrence, transfer of some or all of Coast Guard's commercial vessel safety responsibilities to the Bureau would reduce or eliminate the personnel needed by the Coast Guard for this program.

Transferring programs away from the Coast Guard would reduce its resource needs for those programs and result in a reprogramming of resources to other programs. However, the

regulatory control the Coast Guard has would then be performed by others who may not have the qualifications, independence, or general concern for the public.

The Coast Guard stated that the American Bureau of Shipping and the Coast Guard efforts are not duplicative but they work closely together to ensure that all efforts are complementary. The Coast Guard believes that its and the Bureau's share of workload is at the right level. Also, the Coast Guard added that transferring Coast Guard missions to other Federal agencies would only transfer the cost to those agencies and may result in higher costs.

Because both organizations perform similar functions and their efforts are complementary we believe that the transfer of Coast Guard functions in commercial vessel safety is a viable option for the committee's consideration of Coast Guard resource needs. Also, as recommended in our prior report the Coast Guard is still considering transferring certain functions to the Bureau. We agree with the Coast Guard that transferring its missions to other agencies may not result in savings to the Government.

ESTABLISH MISSION PERFORMANCE LEVELS FOR COAST GUARD BASED ON FUNDING LEVELS

Presently, the Coast Guard attempts to meet all of its missions subject to budget limitations. As a result, limited funding causes missions to not be fully met. Generally, the Coast Guard determines which programs will receive the largest reductions. The committee may wish to request information on those missions where the Coast Guard is reducing its performance. Based on this information, the committee could affect Coast Guard's mission performance by changing mission standards through the legislative process. For example, the Coast Guard is required to inspect all offshore facilities at least annually. Any change in this requirement would impact on Coast Guard's resource needs. In our opinion, if the committee were to change Coast Guard's mission requirements it should determine from the Coast Guard what impact such a change would have on (1) overall mission effectiveness (for example, how would altering platform inspection affect safety), (2) resource requirements, and (3) agency direction in the future. This should ensure that changes would impact on mission effectiveness and resource use in a prescribed manner.

The Coast Guard said that, at present, it changes levels of effort within the mission standards based on funding levels. The extensive use of legislation to change Coast Guard mission standards in response to then proposed budget levels would have a detrimental effect on the Coast Guard's ability to

operate and meet changing requirements and emergencies. The Congress cannot be expected to have the intimately detailed knowledge necessary to optimally allocate Coast Guard resources on the "micro" level, nor is the legislative process likely to be able to provide the rapid response necessary to allow for the numerous allocation decisions that have to be made at this level. The present system recognizes mission standards as goals and attempts to allocate all resources to optimize the overall level of performance.

We recognize that the committee may not wish to monitor all resource allocations, but may wish to provide overall guidance to the Coast Guard. Such guidance could help ensure that resource allocations impact on programs in a prescribed manner consistent with congressional intent.

PURCHASE CUTTERS WITH DIFFERENT CAPABILITIES

The Coast Guard purchases cutters which can perform multimissions. An alternative in a constrained budget would be to purchase less costly vessels with limited capabilities.

Generally, the Coast Guard fleet is required to have military capability--armament and communications--some of which is financed by the Department of the Navy. New installation of armament and communications, and the associated costs are the financial responsibility of the Coast Guard. Should the Coast Guard's fleet be expanded, some of the new vessels would not necessarily have to have military capability. Exercising such an option must recognize national defense needs. Another option would be for the Coast Guard to purchase more small vessels (for example, patrol boats) in lieu of larger medium-endurance cutters. This option would, however, impact on the effectiveness of certain missions, such as enforcement of laws, military preparedness, and search and rescue.

While this option would save money when purchasing cutters, such new vessels may no longer be multipurpose. As a result, they would not be able to perform certain missions which would reduce the Coast Guard's flexibility when assigning missions and determining locations.

The Coast Guard said that while the purchase of less costly ships may resolve some short term cost problems, this approach is likely to be more costly in the long term. It agreed that there may be some functions that could be precluded from some cutter types but these are very limited.

In the long term, the multimission approach makes the cutter more cost effective. By limiting the capability of the cutter, effectiveness is reduced, and the result is either accepting less overall mission performance capability or providing a larger number of different ships with more people and support costs to run them.

We recognize the disadvantages presented by the Coast Guard but in a budget restrained economy this may be a realistic option.

USE OF CONTRACTORS IN SITUATIONS WHEN
THE COAST GUARD DOES NOT HAVE ADEQUATE
RESPONSE RESOURCES

The Coast Guard responds in many instances to situations that are not within its control--cleaning up an oilspill, correcting navigational aids after a major storm, etc. In a soon to be released report we noted that the Coast Guard is able to perform routine maintenance of its aids, but, during certain periods (for example, after a hurricane) may not be able to make timely corrections of aids which have been moved from their proper location. In such instances, the use of contractors might be more cost effective than the Coast Guard attempting to maintain the resources necessary for correcting aids problems under all circumstances.

Using contractors can have certain disadvantages such as, (1) their unavailability (time and location) when needed, (2) their capability may not remain at an acceptable level which may not be realized until after the fact, (3) the Coast Guard would not have maintained its response capability should its services be needed in an emergency, and (4) contractors' costs may rise faster than the Coast Guard's thereby resulting in more cost in the future.

The Coast Guard said that it does use contractors as much as possible when its resources are inadequate to meet requirements. At present, the Coast Guard leases helicopters to transport inspectors to off-shore platforms. Additionally, the Coast Guard stated that staff may need to be increased to administer contracts if this approach were used extensively.

The use of contractors, in our opinion, could help the Coast Guard in performing certain functions when resources are not available.

CHARGE USERS FOR COAST GUARD SERVICES

The Coast Guard performs services for which the users could be charged. For example, the Coast Guard performs search and rescue for mariners needing assistance at sea, marks waterways with navigational aids such as buoys, and inspects vessels to determine compliance with safety requirements under its Commercial Vessel Safety Program. The Coast Guard could establish a fee schedule for such services and make appropriate charges. Any such charges should, when feasible, be related to the costs of the services performed. The Coast Guard is currently considering developing a fee schedule to charge for inspections of U.S. vessels.

We also recognize certain disadvantages or difficulties in implementing a user charge system:

- Mariners requiring assistance at sea may hesitate to contact the Coast Guard if they know they are to be charged for services performed. As a result, mariner safety may be jeopardized.
- The users of some Coast Guard services--radio navigation services, aids to navigation, law enforcement, etc.--may be difficult to identify and it may be difficult to establish equitable charges for some services.
- Costs to implement and administer a user charge system (billing and collection, rate revisions, etc.) could be costly. Also, collection of charges may be a protracted and difficult task.

The Coast Guard said that the possibility of user charges has long been considered. Since nearly all Coast Guard services are inherently governmental functions, user charges do not readily lend themselves to its operations. In the first place, a large infrastructure to administer the program (billing, collection, maintenance of rate structures, etc.) would be required. Users of many services, especially in international waters cannot be identified to the extent necessary to assign charges and enforcement or regulatory action cannot practicably require a fee. The cost for service, for example, search and rescue, may vary over an extremely wide range from case to case, and the actual cost may be much greater than an individual could be expected to pay (with the limit of liability being a very relevant factor). The collection of charges may also be a protracted endeavor and result in litigation. If the Coast Guard were to rely on user charges for its funding, the uncertainty of funds due to collection

problems could result in serious shortfalls which would limit its ability to operate. Finally, a user charge could easily result in a higher expectation of services rendered, for example, expecting quality medical service from search and rescue personnel.

We recognize that disadvantages exist with the Coast Guard charging fees for the services it provides. However, such an option does provide an opportunity for the Government to partially recover Coast Guard costs for services.

AGENCY COMMENTS AND OUR EVALUATION

The Coast Guard in discussing the above options recognized that they are not meant to serve as recommendations, but provided the additional information to show the implications of the approaches.

We recognize that associated with the above options are serious concerns that need to be addressed prior to any implementation. Therefore, they are presented not as our recommendations but as possible options to be considered during the committee's budgetary review process.

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United States Senate

COMMITTEE ON COMMERCE, SCIENCE,
 AND TRANSPORTATION
 WASHINGTON, D.C. 20510

November 16, 1979

Mr. Elmer B. Staats
 General Accounting Office
 Building
 441 G Street
 Washington, D.C. 20548

Dear Mr. Staats:

Various laws have recently been enacted assigning additional duties and responsibilities to the Coast Guard. I, along with other members of the Commerce Committee, have become very concerned over the capabilities of the Coast Guard to perform all of its missions. In his fiscal year 1981 spring review presentation to the Secretary of Transportation, the Commandant stated, "As I look at legislative edicts, the condition and adequacy of our facilities, and our people, it is clear to me that our resources fall far short of the level necessary to carry out adequately the tasks assigned."

Because of the potential gravity of the situation I am requesting that GAO determine whether the Coast Guard's resources are adequate to carry out its missions. Specifically, I am interested if Coast Guard (1) vessels are too old and incapable to carrying out their missions (2) shore facilities are inadequate, and (3) personnel, with sufficient training, are not being retained. A report addressing these issues will be needed by April 7, 1980, in time for Coast Guard authorizing legislation.

I recognize that this request, in the broadest interpretation, could require an evaluation of the entire Coast Guard. Therefore, I expect you will rely on past GAO reports on Coast Guard resource capabilities. After your audit staff has had an opportunity to do some preliminary investigation into the above areas, please contact Mr. Douglas Anderson of my staff to discuss these matters in greater detail so that a mutually agreeable approach can be determined.

In lieu of asking the Department of Transportation for comments on your draft report would you please verify the factual information with Coast Guard.

Thank you for your continuing cooperation.

Sincerely yours,


HOWARD W. CANNON
CHAIRMAN
SENATE COMMITTEE ON COMMERCE,
SCIENCE AND TRANSPORTATION

HWC:dae

LEGISLATION AFFECTING THE COAST GUARD

The Commandant, U.S. Coast Guard, said that a number of legislative actions and non-legislative initiatives have substantially tasked the Coast Guard's resources. The new responsibilities have brought a rapidly increasing workload on the following six Coast Guard programs.

1. Port Security and Safety--The passage of the Ports and Waterways Safety Act of 1972 (Public Law 92-340, 86 Stat. 424) gave the Coast Guard fresh impetus and added increased workload. This legislation was enacted (1) to prevent damage to, or the destruction or loss of, any vessel, bridge, or other structure on or in the navigable waters of the United States, or to any structure or shore area adjacent to those waters, and (2) to protect the navigable waters and the resources therein from environmental harm resulting from vessel or structure damage. This comprehensive legislation provided the authority for the Coast Guard 1/ to issue regulations relating to the movement and control of vessels in the navigable waters of the United States and for the regulation of waterfront facilities, in particular with regard to safety and environmental protection. The act further provided additional considerations relating to environmental protection as well as life safety.
2. Marine Environmental Protection--The National Environmental Policy Act of 1969 (Public Law 91-190, 83 Stat. 852) established the President's Council on Environmental Quality, constituting a major policy commitment to maintain and restore environmental quality. Additionally, in 1970, the Water Quality Improvement Act of 1970 (Public Law 91-224, 84 Stat. 91) tasked the Coast Guard with certain prevention and enforcement duties.

The Coast Guard's present Marine Environmental Protection Program is structured on statutes that

1/The authority is granted to the Secretary of the department in which the Coast Guard is operating, presently the Department of Transportation. This authority is delegated to the Coast Guard.

declare U.S. policy to be aimed at the minimization of pollution and provide the authority for various agencies to promulgate standards and regulations to meet this goal. In the marine environmental protection field, the most significant of these laws are: (1) the Marine Protection, Research, and Sanctuaries Act of 1972, (Public Law 92-532, 86 Stat. 1052) which addresses ocean dumping and establishes marine sanctuaries, (2) the Oil Pollution Act, 1961, (Public Law 87-167, 75 Stat. 402), as amended, which is the U.S. implementing legislation for the International Convention for the Prevention of Pollution of the Sea by Oil, 1954, as amended, and (3) the Federal Water Pollution Control Act Amendments of 1972 (Public Law 92-500, 86 Stat. 816) which provides in part for the prevention of marine pollution by oil, hazardous substances, and sewage from vessels; notification or early detection of discharges; enforcement in cases of contravention, response, and cleanup activities should a discharge occur; and the regulation of marine sanitation devices to comply with standards set by the Environmental Protection Agency. The Clean Water Act of 1977 (Public Law 95-217, 91 Stat. 1566), among other things, essentially extended the requirements of the 1972 amendments to 200 miles offshore and the Outer Continental Shelf.

3. Commercial Vessel Safety--The Water Quality Improvement Act of 1970 (Public Law 91-224, 84 Stat. 91) was one of the first serious efforts to prevent the pollution of domestic waterways from oil and other sources. Its passage placed increased responsibilities on the Coast Guard for enforcing the anti-pollution measures of the act including the development of vessel sewage standards and regulations and for the investigation of pollution incidents. This also relates to its Marine Environmental Protection Program.

The 1977 Presidential Initiatives on Oil Pollution are a comprehensive program to reduce the incidence of pollution from tankers. The initiatives call for a simultaneous domestic and international approach to the total problem of tanker safety and pollution prevention and include upgrading crew qualifications, vessel construction and equipment standards, increasing the tanker boarding program, and developing a marine safety information system.

An act which provided for the licensing of personnel on certain vessels (Public Law 92-339, 86 Stat. 423) established requirements for operators of vessels more than 26 feet long to acquire a Coast Guard issued license, subsequent to testing and proof of other qualifications.

International Voyage Load Line Act of 1973 (Public Law 93-115, 87 Stat. 418) provided authority for the establishment of safe stability standards for commercial vessel trading on international voyages. The Coast Guard reviews stability calculations and supervises the American Bureau of Shipping in issuing proper loading documents and monitors compliance of U.S. Flag Vessels.

4. Enforcement of Laws and Treaties--The Fishery Conservation and Management Act of 1976 (Public Law 94-265, 90 Stat. 331) represents a fundamental change in the United States' domestic and international policies concerning fishing off the coasts of the United States. Under the new law, the United States exercises exclusive fishery management authority over all fish, except highly migratory species, within the 200-mile fishery conservation zone plus the Continental Shelf fishery resources and anadromous species beyond the zone. Conservation and management measures for all fishermen, foreign and domestic, are prescribed and enforced unilaterally by the United States.

The Coast Guard was tasked with the responsibility for supervision of the marine sanctuaries enforcement element of the Marine Protection, Research, and Sanctuaries Act of 1972 (Public Law 92-532, 86 Stat. 1052). Presently, there are two marine sanctuaries which have required active Coast Guard enforcement action--the Key Largo Marine Sanctuary and a recently established sanctuary at the site of the sinking of the Monitor. As additional sanctuaries are established, the Coast Guard will have responsibility for enforcement of regulations pertaining to the individual sanctuary. The President has directed that the Department of Commerce's Office of Coastal Zone Management set as its objective the establishment of six additional sanctuaries within the next 2 years. Sites are being proposed on Georges Bank and in Cook Inlet. It is anticipated

that additional Coast Guard personnel will be required in future budget years for a role similar to those reprogramed for Key Largo Sanctuary enforcement.

Also in recent years, there has been an increased need for Coast Guard law enforcement in the interdiction of drug traffic in the maritime region. This has been directly tied to an overall Executive Initiative regarding drug law enforcement. The 1975 White Paper on Drug Abuse, President Ford's drug abuse message to the Congress in 1976, and President Carter's "Message on Drug Abuse" in 1977 all indicate the degree of commitment the Executive branch has toward the interdiction and control of harmful drug trafficking in the United States. In cooperation with other agencies and as the principal maritime law enforcement agency of the Federal Government, the Coast Guard has the responsibility for enforcement of Federal laws related to transportation of controlled substances within U.S. waters and aboard U.S. vessels.

5. Recreational Boating Safety--The Federal Boat Safety Act of 1971 (Public Law 92-75, 85 Stat. 213) was intended to provide, a comprehensive national program having the following three main objectives:
 - a. Improved boat design and construction.
 - b. More flexible regulation of boat operation.
 - c. Cooperative Federal-State boating safety program.

6. Domestic Icebreaking--The need for maritime transportation in the Great Lakes/St. Lawrence Seaway corridor for more time during the traditional icebound periods has resulted in the Great Lakes Season Extension project. To a certain extent, Great Lakes season extension is a legislative initiative in that the River and Harbor Act of 1970 (Public Law 91-611, 84 Stat. 1818) established a Demonstration Program with Coast Guard participation for evaluating the operational feasibility of season extension of the Great Lakes/St. Lawrence Seaway System. Subsequent acts have extended the Demonstration Program through fiscal year 1979. While no staffing

increases have been introduced in the budget to fulfill the requirements of the season extension program, facilities and people have been diverted somewhat from other program/missions.

The Coast Guard estimated for fiscal year 1979 that these expanded activities would require about 12,500 personnel years of effort but only 8,400 staff resources are available--a net deficit of over 4,100 personnel. The personnel estimates are based on Coast Guard meeting 100 percent of its program standards developed for these laws.

<u>Program</u>	<u>Resources to meet standards</u>	<u>Total available resources</u>
	----- (staff years) -----	
Port Safety and Security	1,302	931
Marine Environmental Protection	1,329	634
Commercial Vessel Safety	1,581	1,322
Enforcement of Laws and Treaties	7,431	4,764
Recreational Boating Safety	121	98
Domestic Icebreaking	<u>693</u>	<u>617</u>
Total	<u>12,457</u>	<u>8,366</u>

The Coast Guard requested in fiscal year 1979, 686 positions to partially offset this deficit. The entire shortage was not requested due to the constraints imposed by the inability to recruit and train an unlimited number of new personnel, and the overall competition for scarce budgetary increases. To help maintain its performance at its highest level, the Coast Guard has attempted to augment budget personnel increases by improved efficiencies (for example, reorganizations) and reprogramming of resources. Also, in many instances to maintain a higher level of output, working hours have been extended. For example, at search and rescue stations personnel work an average of 80 to 90 hours a week. However, the result of increasing workload without increased personnel has meant that the Coast Guard has not met its program standard for certain missions. For example, according to the Coast Guard in the Port Safety Program where, instead of boarding half of those vessels known to be handling dangerous cargoes, they boarded less than a quarter. In the Marine Environmental Protection Program, they are conducting approximately half the desired number of harbor patrols, and, for remote harbor areas patrols are averaging once every 3 months as compared to the standard of once a week.

In addition, there are other laws which have affected the Coast Guard's responsibilities and have resource implications. Some of this legislation is discussed below.

- Outer Continental Shelf Lands Act Amendments of 1978 (Public Law 95-372, 92 Stat. 629) required the Coast Guard to investigate fires, oilspills, personnel accidents, and Outer Continental Shelf drill rigs and platforms; inspect these facilities; document personnel manning them; and, under certain conditions, to draw up regulations for construction and operation of the platforms.
- Occupational Safety and Health Act of 1970 (Public Law 91-596, 84 Stat. 1590) requires Federal agencies to establish occupational safety and health programs and to maintain certain records and reports.
- Privacy Act of 1974 (Public Law 93-579, 88 Stat. 1896) protects, among other things, individuals from the disclosure of certain detailed information concerning them which is held by Federal agencies, and provides for access to records concerning the individual.
- Port and Tanker Safety Act of 1978 (Public Law 95-474, 92 Stat. 1471) sets minimum design and construction standards for tank vessels and establishes a system for Coast Guard inspection of foreign tankers both in U.S. and foreign ports and for the evaluation of foreign crew standards. The Coast Guard is required to monitor oil lightering operations in U.S. offshore waters.
- Freedom of Information Act (Public Law 93-502, 88 Stat. 1561) established procedures whereby parties could gain access to certain Federal files containing information of interest.

PRIOR DISCUSSIONS ONCOAST GUARD RESOURCE LIMITATIONS

We have addressed the problems of Coast Guard resource limitations in some of our prior reports. Such limitations have impacted on its ability to (1) respond to oilspills, (2) survey the dumping of sewage sludge and industrial waste into the ocean, (3) minimize drug smuggling, and (4) assure the safety of vessels entering U.S. waters. Five of our more recent reports are summarized below.

"Coast Guard Response To Oilspills--Trying To Do Too Much With Too Little" (CED-78-111, May 16, 1978), discusses the impact of Coast Guard personnel and equipment shortages on their response capabilities. We noted that the Coast Guard could have opportunities to be more effective in responding to 38 percent of 137 oilspills we analyzed. If the Coast Guard is to improve its oil pollution response capabilities, the following resource issues need additional attention

- staffing shortages at local units have precluded their timely response,
- inadequately trained personnel and rotation of experienced personnel has affected response capabilities, and
- additional oil response equipment is needed to improve Coast Guard capabilities.

"Problems And Progress In Regulating Ocean Dumping Of Sewage And Industrial Wastes" (CED-77-18, Jan. 21, 1977). Coast Guard officials acknowledged that the ocean dumping surveillance goals were not being met. They stated that part of the reason was due to shortage of personnel and equipment.

"The Coast Guard's Role In Drug Interception--How Much Is Enough?" (CED-79-40, Feb. 12, 1979). The Coast Guard's strategy in its drug interception program, concentrates its surveillance efforts on certain routes traveled by drug traffickers. This approach, in our opinion, has permitted effective utilization of the Coast Guard's existing resources. However, the Coast Guard lacks sufficient equipment to provide continuous coverage, and it is estimated that these cutters are present at these points only about 35 percent of the time. It is reasonable to assume that with

increased coverage, the Coast Guard would improve its interception rate of an estimated 8 to 10 percent. ^{1/} Additional coverage would, of course, require additional investment.

"How Effective Is The Coast Guard In Carrying Out Its Commercial Vessel Safety Responsibilities?" (CED-79-54, May 25, 1979). The Coast Guard's program of inspecting U.S. and foreign flag vessels is designed to assure that the maritime industry complies with safety standards. Our review showed that the program's effectiveness is impaired because of shortages in staff and trained inspectors. Considering past experience in obtaining additional resources, we suggested that a feasible solution might be to transfer selected activities to the maritime industry (for example, American Bureau of Shipping, a society that classifies vessels for insurance purposes).

In a May 21, 1979, report entitled "Coast Guard Action Needed To Promote Safer Marine Transportation" (CED-79-37) we discussed the advanced age of certain buoy tenders. A larger percentage of the tenders are over 30 years old--all of the seagoing tenders, the majority of the coastal tenders, and many of the inland tenders were built before 1945. The Coast Guard was planning to buy about 10 new harbor tugboats which will replace older harbor tugs built in 1939 and 1943. All the ships have been renovated to some degree and additional renovations are being considered as an alternative to replacement. We noted that these vessels require considerable maintenance--about 1 day of maintenance is required for every day of operation.

^{1/}According to the Coast Guard, the interception rate currently is 14 to 20 percent.

COAST GUARD'S RESEARCH, DEVELOPMENT, TEST AND EVALUATIONBUDGET AND OBJECTIVES

The Coast Guard has regulatory and enforcement responsibilities in many areas where commercial and public operations change rapidly. The Coast Guard's Research, Development, Test and Evaluation Program seeks to maintain and expand the technological base in areas crucial to the successful execution of its missions. RDT&E is directed at finding resource alternatives as well as providing capabilities that presently do not exist (for example, pollution cleanup, surveillance, and detection). Some of the areas include efforts to:

- Minimize the loss of life, injury and property damage on, over, and under the seas through the use of advanced technology to reduce the time of locating and retrieving persons in peril.
- Improve the safety and efficiency of marine navigation under conditions of normal and reduced visibility.
- Develop means to provide maximum use of ice clogged domestic channels.
- Provide a knowledge base that supports establishment or discontinuance of regulations and standards. Develop methods of preventing marine casualties through crew training, material design, and effective regulation.
- Reduce fatalities, injuries and property damage to the lowest possible level without undue restraint on the recreational boater.
- Define traffic management techniques to provide reliable and earlier conflict alerts, to assess impact of conflict resolution, to reduce congestion, and to route vessels of interest.
- Develop all weather means of detecting, identifying, and quantifying discharges of oil and hazardous chemicals. Develop techniques for oil discharge response in various weather conditions. Ascertain response techniques effective for spills of non-oil hazardous chemicals, including methods of personnel protection.

The fiscal year 1980 budget estimate by major program activity is \$22 million and 232 people (110 military and 122 civilian).

<u>Program activity</u>	<u>Dollars</u>
	(000 omitted)
Search and Rescue (note a)	\$1,050
Aids to Navigation	2,400
Commercial Vessel Safety	2,195
Port Security and Safety	1,500
Marine Environmental Protection	6,000
Multimission (note b)	890
Other (note c)	995
Administration	<u>6,970</u>
 Total	 <u>\$22,000</u>

a/Includes communications systems.

b/Multimission projects include minimizing energy costs and the adverse effects of potential energy sources on Coast Guard operations, while maintaining or improving quality of services provided to the public.

c/Combination of three mission activities.

The RDT&E budget has represented about 1-1/2 percent of the Coast Guard's entire budget for fiscal years 1978-80.

In August 1979, the National Advisory Committee on Ocean and Atmosphere completed a review of the Coast Guard's RDT&E program. The committee stated that the present funding level did not adequately address the Coast Guard's needs. They concluded that the RDT&E budget should represent about 8 percent of the total yearly Coast Guard budget. They considered this as close to the percentage needed by industry and the military to meet the research needs of organizations involved with or dependent on technology.

During the budgetary review process, the RDT&E budget has been reduced significantly from submission to appropriation since fiscal year 1975, as shown in the following table.

Budget stages
(submissions
and funding)

	Fiscal Years					
	------(millions)-----					
	<u>1975</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>
Department of Transpor- tation	\$25.0	\$19.8	\$30.6	\$35.0	\$40.0	\$35.0
Office of Management and Budget	26.7	21.1	25.0	30.0	25.0	23.0
Congress	21.0	20.6	19.0	22.8	20.0	21.8
Funded	16.9	18.6	18.8	20.0	20.0	22.0

The actual funding levels were reduced from the initial submission to the Department of Transportation by 32, 6, 39, 43, 50, and 37 percent in fiscal years 1975, 1976, 1977, 1978, 1979, and 1980, respectively. Even if the Coast Guard had received the total RDT&E funds it requested, the resulting percentage would still be considerably less than the 8 percent of the total Coast Guard budget, as suggested in the committee's study.

During a prior review "Coast Guard's Response To Oilspills--Trying To Do Too Much With Too Little" (CED 78-111, May 16, 1978) we pointed out that budget reductions occurred in the Coast Guard's Marine Environmental Protection research budget. At that time Coast Guard officials informed us that these projects were not eliminated as a result of budget reductions. The time needed for their development, however, will be extended.

INSPECTOR GENERAL'S REVIEW OF THE
COAST GUARD'S MANAGEMENT OF PERSONNEL

In chapter 2 we analyzed the staffing problems the Coast Guard encountered in carrying out its missions but did not discuss its personnel management or its personnel standards needed to perform its missions. The Office of Audits, 1/ Department of Transportation, issued a report entitled "Consolidated Report of Audit of Management of Military Personnel in the United States Coast Guard" (HC-CG-78-2.13, Apr. 7, 1978) which is discussed below along with Coast Guard's comments. The report addressed four issues:

- Staffing standards manual does not provide a reasonable basis to establish or adjust unit personnel authorizations.
- Current personnel authorizations for units are not in accordance with work requirements.
- Use of personnel at the unit level is not always consistent with actual needs.
- Some billets devoted to the general detail (those billets needed in addition to the operational billets necessary to maintain a full operational system; for example, people in training, traveling between assignments) are excessive.

STAFFING STANDARDS IMPROVEMENTS NEEDED

The Coast Guard's Staffing Standards Manual does not provide a reasonable basis to establish or adjust unit personnel authorizations, since most of it represents a composite of positions currently authorized, rather than what should be authorized. This may promote consistency among units but will not identify incorrect staffing. The Office of the Inspector General found that even the portion of the manual developed on an analytical basis could result in unwarranted increases in the authorized staff of some units. For example, when the readiness posture prescribed by station commanding officers was used, the Office of the Inspector General computed the staffing needs for 20 shore

1/Reorganized as the Office of the Inspector General.

stations, performing search and rescue missions, to be 535 positions. The Coast Guard's standard would result in 766 positions--a difference of 231. Projecting the audit results at the 20 stations to 137 stations, it estimated that about 1,200 of the 1,350 additional billets would not be necessary, and an annual cost of \$13 million could be avoided. The Office of Inspector General believes that certain Coast Guard assumptions were questionable.

Recommendations to the Coast Guard

The Office of the Inspector General recommended that the Coast Guard:

- Accelerate development of engineered or statistical standards for air stations and all classes of cutters.
- Reevaluate the shore station staffing standard for those assumptions identified in the audit report as questionable.
- Provide whatever resources are required to develop objective standards for major types of units and prepare a development plan which includes target completion dates.
- Consider the methods of developing manpower standards in use by other Federal agencies and identify opportunities for training staff at schools operated by these agencies.
- Refrain from using information contained in the Staffing Standards Manual as justification for staff increases until refinements are complete.

MANAGEMENT OF MILITARY POSITIONS NEEDS IMPROVEMENTS

The Coast Guard's current system of relating personnel requirements to mission needs was not effective since standards had not been developed for the majority of units. Personnel authorizations for Coast Guard units were developed on a case-by-case basis rather than on a systematic analysis of the actual number and skill level of personnel required. In addition, the Coast Guard has not performed periodic reviews of units to evaluate and revise personnel authorizations. As a result, unit staffing is not always consistent with workload.

The Office of the Inspector General's review of Coast Guard shore stations disclosed that the skills and number of personnel authorized did not correspond to the actual work requirements at the units. Inconsistencies were noted in unit personnel authorizations to accomplish the same missions and the skill level provided to perform the same job.

At the 20 shore stations the office determined that the number of personnel authorized for these units was not proper for the mission assigned. The review of staff authorizations for certain functions at district and group levels disclosed that documentation, such as time distribution records indicating the type of work performed, was not prepared, maintained, or required. Observations disclosed examples of declining workload without staff reductions, increasing workload without staff increases, and identical positions with different grades (ranks) of personnel authorized. Periodic district onsite evaluations are needed to identify and adjust inconsistent staffing conditions existing in Coast Guard units.

Recommendations to the Coast Guard

The Office of the Inspector General recommended that the Coast Guard

- Review, document, and expand the manual for enlisted personnel qualifications to provide a basis for military position reviews by district officials (for example, the requirements of a specific job should correspond to the skills prescribed for each specialty and rank in the Qualification Manual).
- Develop a similar qualifications manual for officers and warrant officers to provide a basis for job reviews.
- Require periodic, at a minimum, yearly personnel evaluations of each unit by a specific group of the district office.
- Provide training to the personnel office staff assigned the responsibility for unit evaluations on the methods of conducting reviews of skills needed for authorized positions and personnel ceiling assessments of district units.

- Require district offices to recommend specific changes in authorized personnel structure to headquarters on the basis of the periodic reviews.
- Direct that each district allocate sufficient staff to conduct an evaluation of a specific type of unit to promote timely development of standards.
- Issue guidance to achieve consistent means for establishing readiness posture, matching staff schedules to search and rescue case data, and prescribing operational practices for shore stations.

SHORE STATION STAFFING MANAGEMENT NEEDS IMPROVEMENTS

Shore station commanding officers are holding station personnel in a readiness posture far in excess of District Operations Plan requirements or actual needs for the search and rescue mission. Coast Guard policy allows district offices to establish the readiness status of shore stations in consultation with headquarters officials. Most district offices prescribe a "minimum" readiness posture for each station, but permit the station commanding officer to maintain a higher state of readiness. The Office of Inspector General believed that this resulted in shore station commanding officer's requiring personnel to perform watch tasks in excess of a 68-hour week which has been established as a goal by the Commandant. These lengthy hours are a frequent reason cited by enlisted personnel who fail to reenlist at the expiration of their first tour of duty.

Analysis of the workload at the 20 shore stations disclosed that station commanding officers required their staffs to stand watch hours far in excess of the readiness requirement of the District Operations Plan or as actual need would dictate.

Recommendations to the Coast Guard

The Office of the Inspector General recommended that Coast Guard

- Establish search and rescue readiness requirements for each shore station based upon a consistent objective analysis of case occurrences.

- Review the status of case occurrences annually and make necessary adjustments to readiness requirements.
- Require that the station commanding officer schedule the working hours of personnel to comply with the prescribed readiness for the station, permitting only temporary increases for emergency or other dangerous situations.
- Require the station commanding officer to notify district and headquarter's officials when permanent increases/decreases in readiness posture are necessary.
- Provide each individual assigned to a position of commanding officer (or Officer-in-Charge) at a shore station with training on methods of aligning staff working schedules with the rate of search and rescue occurrences.
- Require periodic onsite review of station staffing practices by district office personnel.

GENERAL DETAIL BILLETS WERE EXCESSIVE

The Office of the Inspector General observed numerous instances in Coast Guard's First, Third, Fifth, Twelfth, and Thirteenth Districts of individuals who were assigned to units in excess of positions authorized. Discussion with several district officials and review of documentation available in the Twelfth District disclosed that the units could be effectively operated within the authorized staffing level and that the excess personnel were generally not needed; half or 100 extra people assigned to the Twelfth District were not necessary, and an annual cost of about \$1.1 million could be saved.

Recommendations to the Coast Guard

The Office of the Inspector General recommended that the Coast Guard develop and disseminate a definition of the general detail which precisely identifies the manpower losses which will be absorbed by the general detail as opposed to the losses to be included in each unit's authorizations.

COAST GUARD COMMENTS
AND RECENT ACTION

The Coast Guard agreed with the basic thrust of the recommendations for (1) improving the development of staffing standards, (2) applying such standards to personnel authorizations on the basis of actual work requirements or readiness needs, (3) reviewing periodically staffing requirements by field commanders, and (4) effectively managing personnel overhead allowances.

In discussing the development and validation of staffing standards and review of manpower requirements, the Coast Guard recognized that staffing standards have not yet been developed for many areas of Coast Guard activities. Furthermore, many that have been developed represent the initial Coast Guard efforts in this type of documentation. The Coast Guard did not agree that the standards, as initially developed, are useless in the general planning. However, the staffing standards as presently written are not intended to be the sole determination of manpower requirements or the basis for changes in manpower authorizations but are a starting point in the manpower planning process.

The Coast Guard added that the most analytically sound staffing standards can only be used as a guide, particularly in a resource constrained environment where many variable factors affect the workload of common types of functions, jobs, or units. Therefore standards should not be blindly applied because their primary value is as a starting point from which to determine the actual staffing needs of any particular unit.

The Coast Guard questioned many of the specific assumptions, observations, and conclusions, including sample size, that the auditors developed in their criticism of the staffing standards and the purpose for which they were used. The Coast Guard did, however, agree to include all of the areas auditors questioned in their development and validation of improved staffing methods and standards.

Recent Coast Guard action

Coast Guard officials reiterated their recognition of the need to address issues in the report. They added that they are making progress toward evaluation and implementation of the audit report's recommendations in five areas.

1. A major study of the search and rescue system will be completed this year. This study will help determine the readiness response capabilities that are consistent with actual needs. In turn, these response requirements become the initial determinant of the staffing needs of units primarily engaged in this mission. Alternative methods of staffing, consistent with differing levels of response capability or requirements, are being evaluated. Concomitant with this study, separate reviews of the specific staffing criteria for air stations will also be completed this year. Among other issues, these reviews are addressing the specific questions raised in the report.
2. Reviews of the required staffing for several classes of vessels have been completed. These include establishment of the personnel allowance for the new 140 foot icebreaking tug and the 270 foot medium-endurance cutter. The staffing of 95 foot and 82 foot patrol boats has been revised based on the workload required by growing law enforcement activities. Other analyses have been completed on (1) the workload and staffing requirements for engineering maintenance on both the 378 foot high-endurance cutters and the 210 foot medium-endurance cutters, (2) the staffing required for the ordnance equipment on the 378 foot high endurance cutter, and (3) the number of radarmen required to staff the combat information center on these ships.
3. The Staffing Standards Manual is being completed. In addition to conducting the above reviews of standards for stations, air stations and ships, nine additional sections of the manual, covering more than 4,400 existing jobs, have been completed since the time of the review. The staff devoted to development of staffing standards has had some expansion. Department of Defense and Office of Personnel Management schools are routinely used to train Coast Guard personnel in techniques of workload analysis and staffing requirements. Other agencies are consulted as appropriate in reviews of particular functions.

4. Direction has been promulgated to district commanders and commanding officers of headquarters units, requiring them to (1) conduct periodic reviews of subordinate units and staff elements, (2) analyze the workload and staffing requirements, and (3) notify the Commandant when the necessity for changes in staffing is identified.
5. Analysis of the various categories of overhead allowance that make up the General Detail has been made an ongoing part of the development of the Coast Guard's total staffing requirement. Improved identification and definition of these requirements have been developed and documentation is improving.

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